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Wages and Employment Differences between Married Asian American and Non-Hispanic White Women: A 2SLS Simultaneous Equations Approach

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Wages and Employment Differences between Married Asian American and Non-Hispanic White Women: A 2SLS Simultaneous Equations Approach

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Wages and Employment Differences between Married Asian American and Non-Hispanic White Women: A 2SLS Simultaneous Equations Approach

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This study examines wages and employment differences between Asian American (categorized by nativity and Asian ethnicity) and non-Hispanic white wives in a new way. By emphasizing the reciprocal relationship between hourly wages and employment (i.e., hours worked), labor market functions are modeled as a 2-stage least square (i.e., 2SLS) simultaneous equations system that takes into account the endogeneity of wages and employment. This study first implements Hausman's specification test for the exogeneity of hourly wages and estimates both the OLS and 2SLS models. In addition, it tests hypotheses grounded in human capital/assimilation and wage-employment theories concerning: 1) how educational levels affect hourly

wages, and how family factors affect women's employment decision, *ceteris paribus*, and 2) how these two causal mechanisms reciprocally result in wages and employment differences across racial groups. The results are clear. The substantial discrepancy between the two models indicates that the endogeneity (or simultaneity) bias in the OLS models is not trivial. The explanatory power of each 2SLS model and the differences in *t*-ratios across racial groups of the 2SLS results are of much larger magnitude than those of the OLS results. Substantively, this paper finds little evidence that Asian American wives need to have more education or need to work longer hours to earn consistent wages with non-Hispanic white wives.

Table of Contents

List of Tables

List of Figures

Chapter One

Introduction

For at least two decades, sociologists have investigated issues concerning whether Asian American women are indeed a socioeconomically successful "model minority" group or whether they still experience systematic discrimination in the U.S. labor market, thus far with inconsistent results. Some propose that Asian American women have achieved socioeconomic "success" because of their high level of education, ability, self-motivation and strong work ethic (Hirschman and Wong 1984; Chiswick 1978, 1983). Others insist that due to systematic discrimination, Asian American women appear to be overeducated, overworked, underrepresented in executive positions, underemployed in the primary labor market and underpaid (e.g., Woo 1985; Cabezas and Kawaguchi 1988; Hurh and Kim 1989; U.S. Commission on Civil Rights 1988; Yamanaka and McClelland 1994; Min 1995; Mar 2000). Recent studies suggest that such a "positive stereotype" in the media has attenuated the benefits of Asian American women for racial equality, causing a large proportion of Asian Americans to suffer socioeconomic losses in most social policies (Crystal 1989).

While much of the previous work has focused on the direct link between education and income attainment[1] and/or the direct link between race and

[1] Income attainment and employment are two theoretical concepts that are operationalized as hourly wage rate and hours worked in this study.

socioeconomic achievement, holding constant hours worked[2] and other demographic controls, it suffers from several crucial limitations associated with the problem of model misspecification. One of the weaknesses in the literature is that while researchers have consistently estimated the effect of productivity-related characteristics (e.g., education) on wages (or earnings), controlling for hours worked, among other controls, they have ignored the endogeneity of wages on employment. Researchers have used three common causal mechanisms derived from the assumption of unidirectional causality: 1) A single equation models that formulates the wages (or earnings) as a function of a set of explanatory variables; 2) two separate equations that estimate employment and wages respectively, while not estimating the reciprocal relationship between these two equations; 3) a path model that specifies a "one-way" link between employment and wages to account for the effect of wages on the labor market participation (see figures 1-3)[3]. In short, previous research presumes a unidirectional relationship between and among variables.

[2] Many empirical studies have shown that controlling for hours of work is a theoretically meaningful and widely accepted practice to account for wage differences among minority groups. For instance, using the 1980 Census data to compare the robustness of the log wages function and the log earnings function, Petersen (1989: 241-42) found that with the exclusion of the hours worked in the OLS model, the variance explained is very small, suggesting that wage differences were not explained well by education, age, race, English proficiency etc.

[3] Unidirectional causality occurs in a causal model where all causal arrows move uniformly in one direction only. Three types of unidirectional causal systems are shown in Figure 1-3. Figure 1 depicts the standard OLS model of the regression of income attainment. Figure 2 shows two separate OLS regression models of labor market employment and income attainment. Figure 3 presents a path model that links income attainment to employment (or labor market participation).

Numerous theoretical discussions have pointed out that the reciprocal causation[4] is an equally important approach in the analysis of hours worked and hourly wages (Lundberg 1969, 1985; Mincer 1974: 94; Heckman 1979; Sørensen 1983:265; Schultz 1980; Killingsworth 1983; Killingsworth and Heckman 1986). Variations in wages and hours of work are two dependent variables (or endogenous variables), jointly determining earnings inequality. Theoretically, the reciprocal relationship between wages and hours worked exists for several reasons. First, the hourly wage rate offered may affect workers' amount of employment (Barzel 1973; Peterson 1989). That is, workers may decide that the amount of time devoted in the labor market is based on the hourly wage rate offered, among other factors (Stier 1991; Yamanaka and McClelland 1994; Mar 2000). Second, the mount of employment may affect the hourly wages (Peterson 1989).

Statistically, it is well known that one of the main weaknesses of the unidirectional causal mechanism is that when an endogeneity problem is inherent in the model, OLS regressions are inappropriate for estimating reciprocal relationships. The endogeneity problem arises when the true relationship among certain explanatory variables is reciprocal. With the presence of this problem, the OLS estimates of parameters are biased and inconsistent because explanatory variables are

[4] Reciprocal causal mechanism occurs in a multi-equations system when some causal arrows between variables jointly affect each other. Figure 4 illustrates a simultaneous equations system of married Asian American and non-Hispanic white women, which takes into account the reciprocal causal relationship between the hourly wages and hours worked. This non-recursive system links two separate and reciprocally related causal mechanisms of socioeconomic achievement (i.e., the predicted hours worked and the predicted hourly wages).

"stochastic"[5]—i.e., explanatory variables are associated with the error terms. Previous studies on this topic that failed to distinguish these two causal mechanisms may have confounded different causes of earnings inequality[6]. They might have correctly explored the "final outcome" of earnings but they have not interpreted how earnings inequality occurs (Peterson 1989; Waters and Eschbach 1995).

A standard solution to the endogeneity problem is the two-stage least square regression. The 2SLS procedure purges the "polluted" variables that are associated with the error terms. The resulting 2SLS estimates of the hours worked and hourly wages are consistent and unbiased asymptotically since the standard errors are

[5] The presence of "stochastic" variables violates one of the OLS assumptions that the explanatory variables should be fixed—i.e., uncorrelated with the disturbances (e.g., Johnston 1972; Gujarati 1995).

6 The association between independent variables and disturbances implies that one may incorrectly measured variables---i.e., either these measurement errors derive from controlling for the wrong regressors or from the use of a proxy variable in place of an unobservable variable suggested by theories. When errors in measuring the independent variables are incorporated in the error terms, several OLS assumptions are violated because these measurement errors make the independent variables stochastic. To illustrate, suppose that the true relationship is as the following equation:

$$\text{LnY} = \__0 + \__1 X_1 + \__1 \tag{1.1}$$

but that X_1 is measured with the error terms as z_1 where

$$z_1 = X_1 + u \tag{1.2}$$

This implies that X_1 can be written as $(z_1 - u)$, and the first equation then becomes

$$\text{LnY} = \__0 + \__1(z_1 - u) + \__1 \tag{1.3}$$

and

$$\text{LnY} = \__0 + \__1 z_1 + \__1 - \__1 u \tag{1.4}$$

corrected[7]. Given these theoretical and methodological reasons, social scientists suggest that earnings inequality needs to be studied using a non-recursive simultaneous equations system[8] (e.g., Peterson 1989). Despite these theoretical discussions, empirical studies emphasizing a reciprocal causal relationship between wages and hours worked are not found in the literature of socioeconomic attainment of Asian Americans. Finally, it is also the case that most previous studies of Asian Americans' socioeconomic attainment focused primarily on men, while neglecting the wife's contribution derived from working in the labor market for their family (Oppenheimer 1982). As Kitano (1995: 9) points out: "most generalizations concerning Asians concentrate on the male population. Very little information on the role of Asian females is available…Stories of women going back to work alongside their men almost immediately after childbirth are commonly heard." Taken together, these considerations suggest an additional research of the joint determination of employment and wages among Asian American women is needed.

Using the 1990 Census data, this analysis assesses wages and employment discrepancy between Asian American wives and non-Hispanic white wives. Labor market functions are modeled as a 2SLS simultaneous equations system that takes into account the endogeneity of wages and employment for Asian American wives for

[7] The strengths of 2SLS simultaneous equations systems include: 1) it solves the endogeneity problem inherent in unidirectional causal systems; 2) it provides a broader picture of wages-employment discrepancy between Asian minority groups and the dominant group in the U.S. labor market; 3) it makes possible the calculation of the direct, indirect and reciprocal effect of explanatory variables on endogenous variables.

[8] The term "non-recursive" refers to a "two-way flow" causal direction between certain variables (Johnston 1972).

these six groups: Chinese, Japanese, Asian Indian, Filipino, Korean and Southeast Asian. Non-Hispanic white women are viewed as a comparison group. Several questions of interest include: Are wages and employment reciprocally related? Are Asian American wives a "model minority group" or are they socioeconomically disadvantaged in the U.S. labor market due to racial discrimination, relative to the dominant group? In other words, do Asian American wives need to have more education and work longer hours to reach wages consistency with non-Hispanic white wives? How do hourly wages affect women's decision on the amount of employment devoted in the labor market? To what extent do family factors have an effect on women's decision on the amount of employment? Is the 2SLS simultaneous equations approach a better method than the OLS approach for generating more accurate and robust results? Or will the 2SLS and OLS results be different?

The primary goals of this study are to investigate: 1) the structure of the reciprocal relationship between the causal mechanism of the hours worked and the hourly wages across groups; 2) the extent to which educational levels lead to wage differences between married Asian American and non-Hispanic white women[9]; 3) the extent to which family factors act as a resource or an obstacle to married women's employment decision; 4) to recognize and understand how different causal systems can help us compare the robustness of empirical results more accurately; and 5) to

[9] This study uses interchangeably both terms married women and wives to referring to immigrant Asian and native-born non-Hispanic white wives.

clarify the controversial findings in the previous studies derived from using exclusively the standard unidirectional causal mechanisms.

This study is organized around the following Chapters. Chapter One describes the main issues and objectives of this analysis. Chapter Two provides an overview of the main theories and empirical studies of Asian American women's socioeconomic attainment. Chapter two also discusses the nature and reciprocal relationship between the hours worked and they hourly wage rate. Chapter Three describes the survey data, and statistical methods. Chapter Four describes individual and institutional characteristics of foreign-born and native-born Asian American and non-Hispanic white wives. Chapter Five interprets the OLS estimates of the log-wages equation for foreign-born Asian American wives. Chapter Six explains the OLS results of the log-wages equation for native-born Asian American wives and then compares wage differences among Asian American wives in terms of nativity. Chapter Seven discusses the findings of Hausman's Specification tests for both immigrant and native-born Asian American wives. Chapter Eight interprets the 2SLS results of the simultaneous equations of wages and employment for foreign-born and native-born Asian American and non-Hispanic white wives. Chapter Eight also explains the 2SLS results of the log-wages and employment for native-born Asian American wives, and compares the wage differences between foreign-born and native-born Asian American wives, relative to native-born non-Hispanic white wives. Chapter Nine is the conclusion.

Chapter Two

Theoretical Background and Empirical Studies

This chapter provides an overview of theoretical background and empirical studies of the socioeconomic attainment of Asian American women. Because of the diversity in individual and structural characteristics, several theoretical frameworks are used for conceptualizing and explaining the sources of the various patterns of Asian American women's socioeconomic adjustment. They are: employment-wages theory that specifies the reciprocal relationship between employment and wages, as well as theories of human capital, assimilation, ethnic enclave and structural discrimination[10].

2.1 Theory and Empirical Studies of Employment-Wages

2.1.1 Theory of Employment and Wages

Employment-wages theorists propose that the hourly wage rate is endogenous to the labor supply decision, implying that individual workers are more likely to participate in the labor market or work more hours whenever the wage offered by the employer exceeds the expected wage rate they request. In brief, a worker's rewards may encourage a person to work longer (Barzel 1973; Killingsworth and Heckman

[10] These theories are sometimes described as the cultural perspective (i.e., the supply-side of labor market) versus the structural perspective (i.e., the demand side of labor market). Borrowing from the essence of Confucianism, cultural perspective proposes that immigrant Asian Americans' socioeconomic achievement is directly affected by individuals' human capital endowments (e.g., education), family bonds and values. By contrast, the structural explanation insists that immigrant minorities' socioeconomic patterns are affected by the structural of the job market and availability of job opportunities for minorities (Nee and Wong 1985).

1986; Stier 1991). On the other hand, the hours worked is endogenous to the hourly wage rate, implying that extra work may result in a higher hourly wage rate, and that it may be rational for the employer to offer a higher hourly wage rate to those who work harder or longer hours (Rosen 1976; Petersen 1989: Lundberg 1969, 1985). According to these theories, the structural relationships among the causal mechanisms of hours worked, hourly wages and earning inequality are specified as equation (2.1):

$$\textbf{Earnings = Hours worked * Hourly Wage rate} \qquad (2.1)$$

where earnings are the product of the total hours worked last year and the average hourly wage rate. Conversely,

$$\textbf{Hourly wage rate = Earnings / Hours worked} \qquad (2.2)$$

and

$$\textbf{Hours worked = Earnings / Hourly wage rate} \qquad (2.3)$$

where the mean hourly wage rate is estimated by using the total personal earnings last year divided by the hours worked (i.e., equation 2.2). If one estimates earnings,

controlling for the hours worked, then earnings differences derive from variations in the hourly wage rate. Therefore, estimating earnings and controlling for hours worked are equivalent to specifying an equation of the hourly wage rate (see Peterson 1989: 221 & 224).

The other weakness in the previous literature involves the functional form of the wages or earnings equations and the nonlinearity of education. Because many empirical studies have found that the distribution of productivity-related variables tend to be "lognormal" or positively skewed, some transformation (e.g., the natural logarithm) of the data is therefore necessary (e.g., Heckman and Polachek 1974: 353; Hauser 1980: 703; Sørensen 1983: 265). The log earnings function can be written as:

$$\textbf{Ln Earnings = Ln (Hours worked*Hourly wage rate)} \quad (2.4)$$

By definition,

$$\textbf{Ln Earnings = Ln Hours worked + Ln Hourly wage rate} \quad (2.5)$$

Therefore, equation (2.5) presents a complete study of earnings inequality that takes into account the reciprocal relationship between employment and hourly wages.

2.1.2 Empirical Studies of Employment and Wages

Although few sociological analyses have rarely specified the joint determination of wages and employment of Asian American women, the endogeneity

problem of wages is widely discussed in the labor supply literature. Killingsworth and Heckman (1986) argue that when the market wage offered by employers exceeds the wage requested by workers, workers are more likely to work. Under the assumption that only those who obtain wages "equal to or higher" than the expected wage will work in the labor market, the employment decision thus depends on the market wage rate. Mincer (1974: 94) and Sørensen (1983: 265) contend that the dependence of hours worked on the hourly wage rate may lead to "simultaneity bias in earnings functions." Rosen (1974) and Lewis (1969) argue that market wages tend to correlate with variation in hours worked. Petersen (1989: 236-237) suggests that most sociological studies of earnings that control for hours worked imply "a stochastic wage rate," depending on the number of hours worked[11].

Using the 1980 U.S. Census data, he finds that the average hourly wage increases as the number of hours worked increases. Rosen (1976) also finds a noticeably positive relationship between wages and hours for married women. Allen (1983) concludes that the lower the wage rate, the higher the absentee rates. By contrast, several studies disclose a negative relationship between wages and hours

[11] Petersen (1989: 236-237) lists three substantive reasons for the dependence between hours worked by workers and the hourly wage rate. "First, if there are fixed costs of employment, such as employer-paid insurance, it may be rational for employers to pay more per hour to those who work more hours (see, e.g., Rosen 1976: 488-490). Second, a worker's productivity may increase when more hours are worked (see Barzel 1973). This may be true if it takes time to get a job going. If so, employees working more hours may be offered higher wages. Third, nonexempt employees usually receive a different rate for overtime work. Employees with many overtime hours will therefore on the average earn more per hour worked than employees with few overtime hours. Again, the average hourly wage will increase with the number of hours worked."

worked. Abowd and Ashenfelter (1981) suggest that wages are negatively associated with expected hours worked, especially for stably employed Non-Hispanic white men. Ehrenberg and Schumann (1984) contend that, on average, workers do not earn higher 'straight time wages for mandatory overtime."

2.2 General Theories of Asian American Women's Socioeconomic Attainment

2.2.1 Human Capital and Assimilation Theories

Both human capital and assimilation theories propose that education, skills, ability and hard work play a pivotal role in determining the socioeconomic achievement of Asian American women. Nevertheless, there are some nuances of conceptualization that distinguish these theories. Human capital theories, grounded in neo-classical economic theory, suggest that an accumulation of human capital enhances a person's productivity. That is, in a perfectly competitive and equilibrium labor market, human capital endowments (e.g., education and work experience) are the primary factors in determining earnings and occupational attainment, regardless of the effect of racial discrimination (Hirschman and Wong 1981; Hurh and Kim 1989). The more a person invests in his/her human capital, the higher the chance of getting a well-paid job and the more money a person earns. Since racial discrimination tends to decrease the value of investment in human capital and increase the training costs of a firm, it is thus considered to be irrational for a firm to practice racism against its own profits (Beck 1965).

Assimilation theories suggest that education plays an important role in influencing immigrant minorities' socioeconomic adaptation because it helps immigrants assimilate and adjust to the host society (Park 1950; Gordon 1964, 1978). Individuals' longer period of immigration and better English speaking skills are the key to the process of socioeconomic success, regardless of structural constraints. By contrast, poor English proficiency and a lower level of education often hinder immigrants' upward mobility. In other words, less educated persons who also do not speak English well are more likely to face racial discrimination than well-educated persons who speak English well (e.g., Stolzenberg et al. 1997). Nevertheless, it is important to note that after spending extra time adjusting to the new environment, immigrants are often able to achieve equal (or more) earnings, compared to native-born Asian Americans. In short, education, skills, ability and work experience are important determinants of the socioeconomic success of minorities, regardless of the structural effect (Chiswick 1978; Min, 1984; Borjas 1987; Lee and Edmonston 1994; Stolzenberg et al. 1997).

Another popular theory that is similar to human capital and assimilation theories of Asian women's income attainment is neo-Confucianism[12] (or cultural

[12] Confucianism started in China in the 2nd century B.C. and then spread to Korea and Japan and substantially influenced these countries. Strong family bonds, kinship ties and the importance of children's education are now still commonly shared by most Asians (Tran 1988). However, Confucianism in Japan and Korea is not the same as in China, Taiwan or some Southeast Asian countries such as Vietnam. Vietnam was colonized by France and was thus influenced by Catholicism brought by the French, although Vietnam, as well as Cambodia and Thailand, are still major Buddhist countries. Despite the tremendous impact of Confucianism on most Asian countries, Confucianism never affected India. Colonized by the British for about one hundred years until gaining independence

theory). Cultural theory focuses on the substantial impact of neo-Confucianism on socioeconomic attainment via education and family members' obligation to an "interdependent family and kinship unit" (Nee and Wong 1985). Like human capital theory, the cultural perspective proposes that the socioeconomic success of Asian Americans is determined by an individual's "ability" and personality (e.g., ambition and perseverance etc.) to produce resources, and by the important role of the family in providing socialization and support, as well as serving to create "physical capital' via family production (Nee and Wong 1985).

2.2.2 Sociological Criticisms of Human Capital and Assimilation Theories

Sociological critiques propose that human capital and assimilation theories are only necessary but not sufficient in explaining minorities' socioeconomic adaptation for several reasons. First, racial discrimination decreases the equal opportunities for minority groups, creating a competition for scarce resources, which "serves to protect group solidarity" (e.g., Price 1969; Nee and Wong 1985; Hurh and Kim 1989). Second, the labor market is rarely fully competitive and equilibrated because it is segmented into primary and secondary sectors. Wages do not necessarily reflect workers' human capitals and productivity. This is especially the case for jobs in the

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in 1947, English is one of the official languages in India. In India, the main religion, Hinduism, regulates most family, social and religious life. Islam, Sikhism and Jainism also have influenced South Asian culture. Similarly, English is still one of the most important languages in the Philippines. Furthermore, Filipinos were colonized by Spain and most Filipinos are Roman Catholics (Pido 1986). The U.S. administered the country and thus influenced Filipino culture after the Spanish-American War in 1898.

secondary labor market because racial discrimination plays a major role in generating lower wages for minorities in the labor market (Becker 1971).

2.2.3 Structural Discrimination: The Conventional View

Structural discrimination theorists posit that a person's socioeconomic attainment is constrained by the structural factors, such as racial discrimination in the labor market, regardless of human capital characteristics, and that where a minority employee works explains earnings attainment better than a person's human capital resources such as education (e.g., Doeringer and Piore 1971; Piore 1979; Cabezas and Kawaguchi 1988; Lee 1989; Toji and Johnson 1992). In addition, because persons' productivities are often ambiguous and difficult to measure, employers do not necessarily pay workers according to their productivities (e.g., Sørensen and Kalleberg 1981). Dual labor market theorists conclude that due to racial discrimination, a higher proportion of Asian American men and women are trapped in the "secondary" labor market, regardless of their educational levels. In the "secondary" labor market, returns to education for minority groups are less than if they work in the "primary" labor market.

In the literature of this topic, several scholars are viewed as the presenters of this conventional view, such as Cabezas and Kawaguchi (1988), Hurh and Kim (1989), Chin et al. (1996), Takaki (1998) and so forth. Among these scholars, Cabezas et al. are the major reference of this view. For instance, in Takaki's (1998:

475-476) famous book, *Strangers From A Different Shore*, Cabezas et al's (1988) work is cited:

"Asian Americans have not reached [income] equality….The patterns of income inequality for Asian men reflect a structural problem: Asians tend to be located in the labor market's secondary sector, where wages are low and promotional prospects minimal….'Labor market segmentation and restricted mobility between sectors,' observed social scientists Amado Cabezas and Gary Kawaguchi, 'help promote the economic interest and privilege of those with capital or those in the primary sector, who mostly are white men…."

2.2.4 Empirical Studies of Socioeconomic Attainment of Asian American Women

Empirical research on this topic has not produced a wealth of findings regarding the amount, the types and the variations of labor market outcomes that are derived from the joint determination between employment and wages, compared to studies of African American and non-Hispanics American women. Only a few cross-sectional survey-based analyses of socioeconomic attainment have focused on comparing the wage gap, variations in labor market participation rates and occupational prestige between Asian American wives and non-Hispanic white wives, using the conventional OLS method.

According to the standard approach of socioeconomic attainment, determinants of wage differences and variations in labor market participation rates between Asian American women and native-born non-Hispanic white women derive

from both individual and structural characteristics. These characteristics include human capital, nativity, the amount of employment, marital status, family factors, residential differences, ethnic enclaves etc. (Wong et al. 1983; Min 1995). For example, foreign-born Asian Indian and Filipino women are perceived as economically more motivated than other immigrant Asian American women, while immigrant Chinese, Japanese and Korean American women are more likely to be perceived as house wives than other immigrant women (Garner, Robey and Smith 1985).

Empirical findings of Asian American women's socioeconomic achievement have not reached consensus among scholars. Studies supporting the human capital and assimilation hypotheses generally argue that returns to education are larger for Asian American women than for non-Hispanic white women. By contrast, analyses supporting the racial discrimination hypothesis suggest that Asian American women are disadvantaged because they need to be more educated and to work harder to reach income parity with non-Hispanic white women.

Human Capital and Assimilation: The Effects of Educational Attainment, English Proficiency and Length of Immigration

Using the 1970 Census data to compare differences in labor participation rates and mean income between Asian American women and non-Hispanic white women, Hirschman and Wong's (1983) analysis suggests that the mean earnings of Japanese, Chinese and Filipino women are higher than those of non-Hispanic white women.

They conclude that a higher level of education, longer hours worked, residing in areas of higher income and more job opportunities, being younger and so forth, contribute to a higher employment rate and earnings advantages for Asian American women than for non-Hispanic white women.

The U.S. Commission on Civil Rights (1988) employs 1980 Census data to test the human capital hypotheses and to compare earnings for married Asian American women (by Asian ethnicity) and married White women. This analysis finds that married Asian American women have an earnings advantage over married White women because Asian American wives generally have a higher level of education and labor force attachment, other things being equal. The results thus support the human capital thesis.

Using the same data to investigate married Asian American women for six Asian groups, Stier's (1991) empirical findings assert 1) that education is an important determinant of immigrant women's wage level, except for Vietnamese. These findings support the human capital theory that education plays an important role in enhancing immigrant women's wages; 2) length of immigration is positively related to wages; and 3) that English ability and length of immigration are positively related to the wages of immigrant Asian American wives.

Recent empirical studies concerning the effect of educational attainment and the effect of time on income suggest that structural barriers might have historically impeded the socioeconomic attainment of Asian Americans. However, the race effect

has declined over the latter half of the 20th century (Sakamoto et al. 2000). Iceland's empirical findings show that native-born Asian American men and women obtain about the same amount of earnings returns to their occupational status. Tang's (1993) study illustrates that Asian Americans working in science and engineering professions do not receive lower returns to their human capital.

With respect to the level of assimilation of immigrants, social scientists have consistently found that English speaking ability has a substantial influence on the socioeconomic achievement of foreign-born Asian American women. Previous findings indicate that "English non-fluency" is often viewed as a "labor market penalty" for minority groups who do not speak English well (Grenier 1984, Tienda and Neidert 1984; Kosseoudji 1988; Tainer 1988; Chiswick and Miller 1988; Portes and Manning 1987; Portes and Jensen 1987). By contrast, labor market constraints have less effect on immigrants' socioeconomic attainment over time and for the future generations (Nee and Sanders 1985; Landale and Guest 1990).

A recent analysis contends that English fluency and education have an "interactive effect" on earnings. That is, the effect of English fluency on earnings varies, depending on years of schooling. Stolzenberg and Tienda (1997) maintain that earnings of Asian and white Hispanic men follow a pattern called "conditional economic assimilation." They conclude that white Hispanic and Asian men who do not speak English well and who have little schooling tend to make less money than white non-Hispanic men who also do not speak English well and have little

schooling. In contrast, Asians and white Hispanics who speak English fluently and have completed high school tend to make wages equivalent to non-Hispanic whites.

Structural Barriers: The Effect of Racial Discrimination

In contrast to the human capital/assimilation thesis that education contributes to minority groups' socioeconomic attainment, a variety of studies applying structural theory have found that Asian American women suffer from wage disadvantages due to their "overachievement" in education, compared to non-Hispanic white women.

Employing the 1980 Census data set to examine different "strategies of economic adaptation" (including income attainment and labor force participation) of married Asian American women by nativity, relative to White women, Yamanaka and McClelland (1994) estimates the socioeconomic attainment of six immigrant Asian American groups (i.e., Japanese, Chinese, Filipino, Korean, Indian and Vietnamese women) and three native-born Asian American groups (i.e., Japanese, Chinese and Filipino women) in separate regression models. Their control variables for the income equation include four dummy variables referring to different immigration periods, education, three dummy variables indicating levels of English speaking ability, age, marital status, number of children, occupations, percent of Asian women working in the local labor market, market sectors and Asian ethnicity and hours worked. Their findings appear to support the structural theory that both foreign-born (especially recent immigrants) and native-born Asian American wives still face systematic discrimination in the labor market, compared to the

socioeconomic achievement of married White women. For example, except for foreign-born Korean wives and native-born Filipino wives, returns to education are much smaller for most Asian ethnic groups than for White women. Among Asian American wives, however, the native-born seem to have better chances and access to better education and jobs than the foreign-born. They argue that Asian American wives generally work harder in order to reach income parity with married White women (Yamanaka et al. 1994).

Yamanaka et al. (1994) contend that less educated and unskilled immigrant wives often need to work because of their poor economic condition. Such women often take jobs in "peripheral industries" or in the ethnic enclave. Of those who work in the ethnic enclave, immigrant Chinese, Filipino and Korean earn a little more than immigrant Indian and Vietnamese women, supporting the ethnic enclave thesis. Their results also support the middleman minority thesis. For instance, the most successful Asian American wives such as Asian Indian and Filipino immigrants are employed in professional jobs in the "core-self employment," while immigrant Chinese and Korean wives tend to a earn relatively good income in the "periphery-self sector." Hours worked are positively associated with wages across all groups. Finally, regarding the labor force participation equation, the determinants of the regression of labor force participation (i.e., measured as a dummy variable) are immigration periods, education, English speaking ability, age, marital status, number of young children, family income and ethnic residential concentration etc. Yamanaka et al.

(1994) conclude that Asian American women are disadvantaged relative to White women because Asian American women need to have more education and to work longer hours to reach income parity with White women.

Using the 1980 Census data, Hurh and Kim's (1989) study argues that Asian American women earn less than white women, holding constant education, occupational prestige, and so forth, supporting the conventional view of racial discrimination. Several studies find that Chinese and Japanese women were the first to migrate to the United States and establish communities based on ethnic enclaves and economic niches in the economy (Kim and Hurh 1986; Nee and Sanders 1985; Wong et al. 1981; Woo 1985). Portes and Zhou (1992) find that self-employment in small businesses are positively linked to earnings for minority groups because ethnic enclaves provide more job opportunities and better earnings for minority groups than jobs located in the secondary labor market.

Regarding the occupation effect, a plethora of empirical studies employing dual labor market theory suggests that immigrant Asian minorities earn less for the same job in the secondary[13] labor market. Asian American women are also more likely to be excluded from jobs located in the primary labor market, where jobs and earnings are better than those in the secondary labor market (Bonacich 1972; Hogan

[13] Split labor market theories propose that the returns to human capital are larger in the primary labor market because of an institutional arrangement, often called the internal labor market, where firms set up promotion system to motivate employees' working morale and reward good performance (e.g., Doeringer and Piore 1971).

and Pazul 1982). Although many studies have shown that English proficiency and a longer time since immigration help immigrant minorities adjust to the host society over time, some studies argue that not all immigrant minorities are able or willing to assimilate to the culture of the host society[14].

The Effect of Regional Differences

With regard to regional differences, empirical studies have indicated that Asian American women tend to be geographically concentrated in high income states and metropolitan areas such as California, New York, etc., while non-Hispanic white women are dispersed everywhere in the U.S. Asian American women may receive high income but their spending is also relatively higher when they live in high income states (Woo 1985). Cabezas and Fong's findings (1976) held that 80% of the total Asian American population lived in five states: California, Hawaii, New York, Illinois and Washington.

The Effects of Family Characteristics: Family's Economic Condition, Number and Age of Children, Family Size and Husband's Wages and Educational Level

Although many sociological studies agree that family factors play an important role in affecting Asian American women's socioeconomic attainment, others argue that family factors do not have a direct effect. Instead, family factors

[14] For example, Chong (1998) argues that Korean Americans have shown the least willingness to cope with the American culture and life because Korean Americans tend to have a strong sense of "social marginalization" derived from its racial status. His study also shows how Korean churches play an important role in shaping Korean Americans' identity and a sense of belonging.

have a more direct impact on Asian women's decision to work than on income attainment. Therefore, this section will focus on how family factors affect married women's decision to be employed in the labor market (Stier 1991; Yamanaka et al. 1994).

According to human capital theory, individuals' choices to work are conditioned by characteristics of their family (Becker 1965; Lundberg 1988). That is, women choose between the time spent at work and the time spent at home activities (Becker 1965). Moulton (1978) finds that in 1969 the median annual family income for Asian Americans was lower than that of Anglo-American families. Lee (1994) finds that more immigrant families are in poverty than nonimmigrant families.

Economic theory suggests that women's labor supply mainly depends on two family factors: 1) the pressure of a poor family's economic situation often forces immigrant women to work to reinforce the family budget; 2) time spent at home for children is weighed against the women's market benefits such as income attainment. Women are expected to take up family responsibilities such as the care of young family members and housework efforts, which make it difficult for women to use their skills and talents to further develop their own career interests and success (Stier 1991). As a result, Asian American women are often perceived as unpaid family workers in the context of community development (e.g., Glenn 1983). Holmstrom (1973) argues that family responsibilities hinder women's achievement and

occupational attainment. Stier's (1991) empirical findings show that non-earned family income reduces the chance that the wife will work in the labor market.

Using the 1980 Census data, Stier's analysis (1991:70) constructs a path model to describe variations in immigrant Asian wives' socioeconomic behavior—i.e., labor market participation rate and income attainment for six groups, including Chinese, Filipino, Japanese, Asian Indian, Korean and Vietnamese. Stier (1991) estimates two separate equations for immigrant Asian wives' wages and their husbands' wages. The wife's wages are affected by her human capital endowments such as education, age, English ability and recent immigration. The wife's wages in turn affects her labor market participation decision. Similarly, the husband's wages are affected by his human capital characteristics. Both wife's and husband's wages in turn affect the wife's labor force participation rate, controlling for family factors. However, family factors do not have a direct causal link to wife's income attainment.

Stier's (1991) findings suggest that family characteristics such as the number of young children are important determinants of the labor supply for all groups. Family size has a positive effect on women's labor supply for most Asian groups other than Japanese and Vietnamese. Other sociological analyses suggest that the number of young children and marital status often change the relationship between "work commitment" and "family life cycles (Mincer 1962; Cain 1966; Bowen and Finegan 1969; Sweet 1973; Waite 1980; Oppenheimer 1982). Yamanaka and McClelland (1994:95) argue that family economic pressure, number of children,

marital status, timing of immigration, education, English speaking ability and ethnic residential concentration are determinants of Asian American women's labor force participation.

Regarding the effect of family size on labor supply, empirical evidence shows that a large family with more adult members usually creates more incentive for women to work because larger families consume more resources. The number of family adult members increases the chance of women's decision to work in the labor market for all groups (Stier 1991). Fong and Cabezas's (1976) analysis suggests that the average family size of Asian Americans is larger than that of most non-Hispanic white families, implying a greater consumption of family resources by its members.

Empirical studies also show that the presence of young children disturbs socioeconomic attainment for women, especially married women, because the presence and number of young children are assumed to require women to spend more time at home than at work and thus reduces the need for a wife to be an economic contributor. Sociologists argue that women could achieve more without the presence of children (Bowen and Finnegan 1969; Mincer and Polanchek 1974; Wolf and Rosenfeld 1978; Rosenfeld 1979). Woo's (1985) analysis argues that marriage and childbearing responsibility tend to reduce women's chance of labor market participation. However, Asian American women are still more likely than non-Hispanic white women to work in the labor market. Stier's (1991) empirical study concludes that the number of young children reduces the chance of women's decision

to work for all groups. The probability of women's need to work decreases when other resources made by husbands or other adult members are available to the family. In short, family constraints play a crucial role in women's labor force participation across the six Asian ethnic groups.

Studies employing human capital theory generally argue that the husband's wages determine an Asian American wife's socioeconomic attainment but not the other way around (Hiller and Philliber 1989). According to this view, women and children receive social status indirectly via the achievement of the male, the family head (e.g., Parkin 1971; Westergaard and Resler 1975; Goldthorpe 1983). The husband or father plays the determining role in the lives of all family members, independently of wife' educational attainment, labor force experience and career choices (e.g., Acker 1973; Allen 1982). Empirical studies show that the husband's wage is negatively related to the wife's decision to work for Vietnamese and Filipino wives. Husband's wage does not seem to have a strong effect on other Asian groups' labor supply decision. Surprisingly, the husband's wage increases the likelihood of working for Chinese wives (Stier 1991). Using the 1980 PUMS data to examine married Asian American women's labor market participation rate, Yamanaka et al.'s (1987) empirical findings suggest that the labor force participation of married Asian American women is affected more by structural factors such as labor market opportunities and family life cycle than by individual human capital characteristics.

2.3 Limitations on Previous Studies of Asian American Women's Socioeconomic Attainment

Main criticisms of theories of Asian American women's income attainment are as the following: First, most previous studies conceptualize Asian Americans as a "unified" group based on the US Census Bureau's definition. As discussed above, diversity among Asian Americans derives from differences in gender, nativity, ethnicity, marital status, the decision to work and so forth. Second, most previous studies of Asian American women's well being do not specify an hour-wage structure. Third, although some sociological studies recognize that there is a direct influence of women's hourly wage rate on women's decision to work, and a correlation between these two variables, they do not specify that hours worked and the hourly wage rate may affect each other simultaneously. Without specifying the reciprocal relationship between hours worked and the hourly wage rate, previous studies encountered a potential model misspecification error (e.g., Petersen 1989).

2.4 Hypotheses

The hypothesized links between and among variables are evaluated grounded in the theories and empirical studies discussed above.

H1: Educational levels link positively to hourly wages, other things being equal.

H2: Education has a non-linear effect on hourly wages. That is, each educational level affects hourly wages differently.

H3: The hours worked are formulated as a function of family factors, hourly wages, and demographic controls, while the hourly wages are formulated as a function of educational levels, hours worked and demographic controls.

H4: Hours worked link negatively to hourly wages, while hourly wages link positively to hours worked.

H5: A higher level of English proficiency and a longer time of immigration are linked positively to hourly wages. By contrast, those who speak English poorly with a short time of immigration are linked negatively to hourly wages.

H6: The effects of all explanatory variables on the dependent variables differ across racial/ethnic groups.

Chapter Three

Data and Statistical Models

3.1 Data

This analysis uses 1990 Census data from the 5% Public Use Microdata Sample (i.e., PUMS) for information on Asian American wives, while a 0.1% PUMS sample is used for information on non-Hispanic white wives[15]. The 5% sample of Asian American wives is selected based on the following characteristics: nativity, those who are married (with their spouts present), aged 25-64, who reported they worked in the labor market in 1989 and earned positive income for seven groups (i.e., Chinese, Asian Indian, Filipino, Japanese, Korean, Southeast Asian and Asian/Pacific Islander). The 0.1% sample is sufficiently large to allow an in-depth examination of non-Hispanic white women. Samples selected in this study are weighted to reflect each group's proportion of the national population.

The 1990 national census data files consist of several strengths[16]. First, they have a large sample size of each population group. Second, they cover a variety of topics of investigation for this study, including household composition, race, ethnicity, immigration, female labor force participation, the household economy, industrial and occupational structure, income, earnings and education etc. Third, these data files contain a complete, large and broad scope of geographic coverage. Fourth,

[15] For detailed information concerning the composition (in terms of country origin) of immigrant Non-Hispanic white women, see Appendix III.

[16] For detailed information concerning the quality of the 1990 Census data and the actual questions on the Census forms, see Appendix IV and II.

these national public use census files allow systematic comparisons across racial groups on topics such as wages and employment differences across racial groups.

It is worth noting that this study restricts the respondents to married women only in order to provide more informative results about the net effect of minority group. However, the restriction may have committed a problem of sample selection bias because empirical evidence has shown that non-Hispanic white women are more likely to divorce than Asian American women. This tendency may reduce the robustness of the results in this analysis. Although this analysis recognizes this potential bias, due to the space and time limitations, it does not seek to solve this problem. However, clarification of this issue should be an important priority for future research on married women's socioeconomic attainment.

3.2 Statistical Models

The statistical analysis in this study includes the estimation of Ordinary Least Square (i.e., OLS) regression models and the estimation of 2-Stage Least Square (i.e., 2SLS) simultaneous equations models. Employing both OLS and 2SLS methods allows this analysis to clarify in two ways some controversial findings regarding the causal relationship between explanatory variables and income attainment analyzed in previous studies on the socioeconomic attainment of Asian American women. Empirical results obtained from using both methods are compared to see whether results differ substantially.

3.2.1 The Baseline Models: OLS Regression Models

A pooled OLS regression model that includes all Asian American and non-Hispanic white women is constructed to examine how educational levels affect the hourly wage rate, controlling for hours worked, family factors, region, occupation, nativity, English speaking ability, length of immigration, a set of dummy variables indicating different Asian ethnicities. This model directly assesses the structural discrimination hypothesis as to how race/ethnicity leads to wage differences across groups. In addition, it is very important to include a set of interaction terms between racial categories and educational levels to test the human capital hypothesis—i.e., how each education level contributes to wage differences, depending on race/ethnicity. However, numerous empirical studies have found that the impacts of other important variables, such as family factors, regions, occupations, assimilation also vary across racial/ethnic groups. In other words, there are interactive effects between these variables and race/ethnicity categories that should be assessed carefully. A pooled regression model may be simple and convenient, it has some limitations. Since investigating the interaction effects between variables requires a huge number of interaction terms (over 100 interaction terms would be needed in this study), a pooled regression model would complicate the interpretations of the results and reduce the efficiency of the model.

A similar way of estimating the interactive terms between characteristics and race/ethnicity is by estimating a separate regression model for each racial group. This

practice allows a clear comparison of how the effect of each explanatory variable differs across racial/ethnic groups. In other words, by holding race/ethnic categories constant, one can easily compare how independent variables vary across groups. For example, returns to a Ph.D. degree are different for Chinese, Filipino, and Asian Indian women etc. To test whether Asian American women are indeed a socioeconomic successful "model minority" due to their high level education or whether they are overeducated, overworked and underpaid due to racial discrimination, this analysis conducts *t*-tests to compute the *t*-statistics for the hypotheses of human capital and racial discrimination. That is, I compare the differences in *t*-statistics of each educational level and hours worked between non-Hispanic white wives and each Asian American group[17].

The OLS regression of hourly wage rate[18] for each racial group is written as:

$$\textbf{Ln hourly wages} = \alpha + \beta \ \textbf{ln hours worked} + \gamma \mathbf{X} + \varepsilon_{1i} \qquad (3.1)$$

[17] The formula for the *t*-tests is $t = \frac{b_{Asian} - b_{White}}{\sqrt{(SE_{Asian})^2 + (SE_{White})^2}}$, where b_{Asian} is the unstandardized slope coefficient for each foreign-born Asian group, while b_{White} is the unstandardized slope coefficient for native-born non-Hispanic white wives. SE_{Asian} is the standard error for each Asian group, while SE_{White} is standard error for native-born non-Hispanic white wives.

[18] See appendix II for the information about the quality of the 1990 census data, including the actual questions on the census forms and sample design etc.

The dependent variable is the log of hourly wages, referring to the log of the individual's total 1990 earnings divided by that person's total hours worked in 1989. α is the intercept. X is a matrix consisting of several independent variables, including: a set of five dummy variables indicating different educational levels. The control variables include: 1) years of age; 2) family factors, such as husband's educational levels and husband's hourly wage rate, number of young children, family's economic condition and family size; 3) regions[19].

3.2.2 Hypotheses Testing for the Exogeneity

As an additional check on the endogeneity problem, this study conducts hypotheses testing using both Pearson correlation and Hausman's specification tests. Pearson correlation estimates the magnitude and association between explanatory variables and error terms, while Hausman's specification test examines the causal relationship between error terms and two endogenous variables (i.e., $\ln Y_{1i}$ is the predicted log of hours worked and $\ln Y_{2i}$ is predicted log of hourly wages) (Kennedy1993). Hausman's specification tests are addressed as:

$$\mathbf{LnY_{1i} = \beta_{12} lnY_{2i} + v_{1i}} \qquad (3.2)$$

and

[19] For the description of variables, see Appendix I.

$$\mathbf{LnY_{2i} = \beta_{21} lnY_{1i} + v_{2i}} \quad (3.3)$$

where lnY_{1i} and lnY_{2i} are the estimated variables of lnY_{1i} and lnY_{2i}[20]. Equations (3.1) and (3.2) illustrate two steps of the tests: 1) Regressing lnY_{1i} on all Xs to obtain the estimated error terms (i.e., v_{1i}); 2) regressing lnY_{2i} on both lnY_{1i} and v_{2i}, and 3) performing *t*-tests on the slope coefficient of the estimated v_{1i} and v_{2i}. Under the null hypothesis if there is no simultaneity problem, the slope coefficients of the estimated v_{1i} and v_{2i} will be zero asymptotically. By contrast, if it is statistically significant, one cannot reject the null hypothesis that there is no simultaneity problem.

3.2.3 The Non-Recursive Simultaneous Equations Models: 2SLS Regressions

This study investigates wages and employment differences by estimating both the single and multi-equation models of hourly wages. First, this study develops and estimates the standard OLS regression models of the log of hourly wages, controlling for the log of hours worked, holding others constant. It then estimates 2SLS regression models. The second method makes use of the theory of wage-employment. Instead of estimating the original log of hourly wages and hours worked (i.e., the metric variables), this analysis includes the constructed instruments for both the hours worked and hourly wages[21] in the 2SLS causal systems. Estimating the 2SLS system

[20] To test one of the characteristics of the instrumental variables that lnY_{1i} should not be correlated with the estimated ε_{1i} and lnY_{2i} should be uncorrelated with ε_{2i}, I also conduct the Pearson Correlation test to determine if there is correlation between the estimated instruments and the error terms. Results are discussed in chapter seven.

[21] Instrumental variables are constructed by regressing hours worked and hourly wages on all exogenous variables in the system to obtain the predicted values from each. Employing both OLS and 2SLS methods allows this study to clarify some controversial findings regarding the causal relationship

of multi-equations solves the problem of simultaneity of OLS models, accounting for the endogeneity of employment and wages. This analysis expects that 2SLS procedure should produce more theoretically plausible results than the OLS method.

To "purge" or "purify" the stochastic explanatory variables, this analysis performs two reduced-form equations[22] developed independently by Henri Theil (1953) and Robert Basmanss (1957). This main goal is achieved by using the reduced-form equations to obtain the predicted values of hourly wages and hours worked and the instrumental variables (i.e., IV) procedures[23]. A 2SLS simultaneous

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between and among variables analyzed in previous studies on this topic. Empirical results from both the OLS and 2SLS regressions are compared to see whether results differ substantially.

[22] *Stage 1: To "purge" the likely correlation between lnY_{1i} and ε_{2i} as well as between lnY_{2i} and ε_{1i}, I first regress the log-hours worked (i.e., lnY_{1i}) and the log-hourly wage (i.e., lnY_{2i}) on "all" exogenous or predetermined variables in the entire system to correct the standard errors as well as to obtain the predicted values of lnY_{1i} and lnY_{2i}. The reduced-form equations of hours worked and hourly wages can be written as:*

Employment Function:

$$\begin{aligned} LnY_{1i} &= \Pi_{10} + \Pi_{11}X_{1i} + \Pi_{12}X_{2i} + \Pi_{13}X_{3i} + \Pi_{14}X_{4i} + \Pi_{15}X_{5i} + \Pi_{16}X_{6i} + \\ &\Pi_{17}X_{7i} + \Pi_{18}X_{8i} + \Pi_{19}X_{9i} + \Pi_{110}X_{10i} + \ldots\ldots\ldots\ldots\ldots + \Pi_{1n}X_{1ni} + \nu_{1i} \end{aligned} \quad (4.1)$$

Wages Function:

$$\begin{aligned} LnY_{2i} &= \Pi_{20} + \Pi_{21}X_{1i} + \Pi_{22}X_{2i} + \Pi_{23}X_{3i} + \Pi_{24}X_{4i} + \Pi_{25}X_{5i} + \Pi_{26}X_{6i} + \\ &\Pi_{27}X_{7i} + \Pi_{28}X_{8i} + \Pi_{29}X_{9i} + \Pi_{210}X_{10i} + \ldots\ldots\ldots\ldots\ldots + \Pi_{2n}X_{2ni} + \nu_{2i} \end{aligned} \quad (4.2)$$

Stage 2: I replace lnY_{1i} and lnY_{2i} in the original OLS equations by the predicted lnY_{1i} and lnY_{2i}. I then estimate the 2SLS equations systems. The estimates received are thus consistent (i.e., they converge to their true values in the population as the sample size increases indefinitely) because the explanatory variables in these equations are now uncontaminated, predetermined variables and hence uncorrelated with the stochastic disturbance (Johnston 1972; Kmenta 1986; Judge et. al 1988; Kennedy 1993; Gujarati 1995 etc.).

[23] To perform an IV procedure, one must find an "instrument" for each explanatory variable that is correlated with the error terms. This instrument will be a *new* independent variable that must have two characteristics. First, it must be uncorrelated with the disturbances. Second, it must be (highly) correlated with the original metric variables, hours worked and hourly wages. (Kennedy 1993).

equations system is then designed to capture the relationship between the hours worked and hourly wages. The 2SLS causal mechanism is written as the following[24]:

The Employment Function:

$$\mathbf{LnH = \beta_{12} lnW + \gamma X_1 + \varepsilon_{1i}} \qquad (5.1)$$

The Hourly Wages Function:

$$\mathbf{LnW = \beta_{21} lnH + \gamma X_2 + \varepsilon_{2i}} \qquad (5.2)$$

where LnH, an endogenous variable, is the natural logarithm of hours worked in 1989. LnW, an endogenous variable, is the natural logarithm of the hourly wages received by the worker. ε_{1i}, ε_{2i} and ε_{3i} are normally distributed random error terms. X_1 is a matrix of exogenous (or explanatory) variables, including: 1) Husband's Hourly Wages; 2) Husband's education: Ph.D., husband's MA, husband's BA, husband's Some College, husband's High School; 3) Family Economic Condition; 4) Family size; 5) Number of Young Children, measured as two dummy variables, indicating having two kids or less under age of five and having two or more kids over age of

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[24] In order to be certain that the 2SLS simultaneous equations system does not commit an identification problem, at least one variable in the 1st equation of the 2SLS system is either excluded or different from variables in the 2nd equation and vice versa. The third equation is specified as:

$$LnE = \beta_{12} lnH + \beta_{21} lnW + \varepsilon_{3i} \qquad (5.3)$$

where LnE is the natural logarithm of earnings that is a linear combination of the predicted log of hourly wages and hours worked. As mentioned before, one of the main purposes is to specify how the causal mechanisms of the hours worked and hourly wages occur, equation (5.3) is not computed in this analysis.

five. Control variables include: 1) Length of Immigration, measured as two dummy variables, indicate those who immigrated for ten years and those who immigrated for more than twenty years; 2) English Proficiency, two dummy variables, indicate those who speak English very well and those who speak English poorly. X_2 is a matrix of explanatory variables including: 1) Hours Worked in 1989; 2) Women's educational levels: measured as five dummy variables indicating Ph.D., MA, BA, Some College and High school. Control variables are: 1) Age; 2) two dummy variables of length of immigration; 3) two dummy variables indicating English Proficiency; 8) five dummy variables indicating occupations; 9) four dummy variables indicating regions.

3.2.4 Total Effect of Explanatory Variables on Endogenous Variables

After estimating the reduced-form 2SLS equations, I compute the effect of each explanatory variable on the endogenous variables. First, the total effect of explanatory variables on the endogenous variables is written as:

$$T_{yx} = \Pi = -\beta^{-1}\Gamma \tag{6}$$

This equation refers to the total effect[25] of predetermined (or explanatory) variables on the endogenous variables, $\ln Y_{1i}$ and $\ln Y_{2i}$. I will give examples of how X_{11i} affects $\ln Y_{1i}$ and how X_{12i} affects $\ln Y_{1i}$. The same rationale is then applied to how other explanatory variables affect $\ln Y_{1i}$ and $\ln Y_{2i}$.

[25] Total effect means the sum of the direct and indirect effect of the regressors on the regressands.

A few examples of the total effect of X_{1ni} on $\ln Y_{1i}$ and the total effect of X_{2ni} on $\ln Y_{2i}$ can be expressed as:

$$T_{y1ix10i} = \Pi_{10} = \frac{\beta_{12}\gamma_{20} + \gamma_{10}}{1-\beta_{12}\beta_{21}} \qquad T_{y2ix20i} = \Pi_{20} = \frac{\beta_{21}\gamma_{10} + \gamma_{20}}{1-\beta_{12}\beta_{21}}$$

$$T_{y1ix11i} = \Pi_{11} = \frac{\gamma_{11}}{1-\beta_{12\beta21}} \qquad T_{y2ix21i} = \Pi_{21} = \frac{\beta_{21}\gamma_{11}}{1-\beta_{12}\beta_{21}}$$

$$T_{y1ix12i} = \Pi_{12} = \frac{\gamma_{12}}{1-\beta_{12\beta21}} \qquad T_{y2ix22i} = \Pi_{22} = \frac{\beta_{21}\gamma_{12}}{1-\beta_{12}\beta_{21}}$$

$$T_{y1ix13i} = \Pi_{13} = \frac{\gamma_{13}}{1-\beta_{12\beta21}} \qquad T_{y2ix23i} = \Pi_{23} = \frac{\beta_{21}\gamma_{13}}{1-\beta_{12}\beta_{21}}$$

$$T_{y1ix14i} = \Pi_{14} = \frac{\beta_{12}\gamma_{24}}{1-\beta_{12}\beta_{21}} \qquad T_{y2ix24i} = \Pi_{24} = \frac{\gamma_{24}}{1-\beta_{12}\beta_{21}}$$

$$T_{y1ix15i} = \Pi_{15} = \frac{\beta_{12}\gamma_{25}}{1-\beta_{12}\beta_{21}} \qquad T_{y2ix25i} = \Pi_{25} = \frac{\gamma_{25}}{1-\beta_{12}\beta_{21}}$$

$$T_{y1ix16i} = \Pi_{16} = \frac{\beta_{12}\gamma_{16}}{1-\beta_{12}\beta_{21}} \qquad T_{y2ix26i} = \Pi_{26} = \frac{\gamma_{26}}{1-\beta_{12}\beta_{21}}$$

$$T_{y1ix17i} = \Pi_{17} = \frac{\beta_{12}\gamma_{27}}{1-\beta_{12}\beta_{21}} \qquad T_{y2ix27i} = \Pi_{27} = \frac{\gamma_{27}}{1-\beta_{12}\beta_{21}}$$

$$T_{y1ix18i} = \Pi_{18} = \frac{\beta_{12}\gamma_{28}}{1-\beta_{12}\beta_{21}} \qquad T_{y2ix28i} = \Pi_{28} = \frac{\gamma_{28}}{1-\beta_{12}\beta_{21}}$$

$$T_{y1ix19i} = \Pi_{19} = \frac{\beta_{12}\gamma_{29}}{1-\beta_{12}\beta_{21}} \qquad T_{y2ix29i} = \Pi_{29} = \frac{\gamma_{29}}{1-\beta_{12}\beta_{21}}$$

$$T_{y1ix110i} = \Pi_{110} = \frac{\beta_{12}\gamma_{210}}{1-\beta_{12}\beta_{21}} \qquad T_{y2ix210i} = \Pi_{210} = \frac{\gamma_{210}}{1-\beta_{12}\beta_{21}}$$

Figure 4 illustrates a 2SLS simultaneous equations model of foreign-born Asian American and non-Hispanic white wives, which takes into account the reciprocal causal relationship between employment and income attainment. This non-recursive system links together two reciprocally related dimensions of socioeconomic achievement (i.e., the predicted hours worked and the predicted hourly wages).

Chapter Four

Socioeconomic Characteristics of Asian American and Non-Hispanic White Wives and Their Husbands

The purpose of this chapter is to describe and compare considerable variations in individual and labor market characteristics from seven foreign-born and seven native-born Asian ethnic groups, non-Hispanic white wives and their husbands.

4.1 Characteristics of Foreign-Born Asian American and Non-Hispanic White Wives and their Husbands

Table 1 shows descriptive statistics of variables for immigrant Asian wives and husbands in the 1990 PUMS 5% data. The sample contains 17,988 immigrant non-Hispanic whites, 9,593 immigrant Chinese Americans, 10,488 immigrant Filipino Americans, 4,775 immigrant Asian Indian Americans, 2,404 immigrant Japanese Americans, 5,292 immigrant Korean Americans, 5,158 immigrant Southeast Asian Americans and 337 immigrant Asian and Pacific Islanders.

Hourly Wages

The average hourly wage rate is $11.64 for non-Hispanic white wives, $12.26 for Chinese American wives, $14.19 for Filipino wives, $14.74 for Asian Indian wives, $12.50 for Japanese wives, $11.98 for Korean wives, $10.66 for Southeast Asian wives, and $10.60 for Asian and Pacific wives. These findings indicate 1) that most Asian immigrant wives on average earn more money than immigrant non-Hispanic white wives except Southeast Asian and Asian and Pacific wives; 2) that

immigrant Asian Indian and Filipino wives stand out as the groups with the highest average wage rate, followed by Chinese and Japanese wives; 3) that immigrant Southeast Asian and Asian Pacific wives earn much less average hourly wage than non-Hispanic white wives.

Human Capital: Educational Attainment

With regard to educational attainment, Table 1 indicates substantial variations in levels of education across all racial and ethnic groups. The percentage of having a Ph.D. degree is 2.99% for non-Hispanic white wives, 3.46% for Chinese wives, 4.61% for Filipino wives, 11.16% for Asian Indian wives, 2.08% for Japanese wives, 2.31% for Korean wives, 1.53% for Southeast Asian wives and 0.30% for Asian Pacific wives. These finding suggest that Asian Indian wives have the highest percentage of having a Ph.D. degree. These findings also suggest that Chinese and Filipino wives are more likely than non-Hispanic whites and other ethnic groups to have a Ph.D. degree, while Japanese, Korean, Southeast Asian and Asian Pacific wives are less likely to have a Ph.D. degree than non-Hispanic white wives.

Further, the percentage of having a MA degree is 5.0% for non-Hispanic white wives, 12.53% for Chinese wives, 3.63% for Filipino wives, 16.08% for Asian Indian wives, 4.49% for Japanese wives, 4.44% for Korean wives, 2.87% for Southeast Asian wives, and 0.30% for Asian Pacific wives. Again, Asian Indian wives are more likely to have a MA degree than all other groups. Chinese women are

also more likely to have a MA degree than other ethnic groups, except Asian Indian wives.

Regarding the BA degree, the percentage of having a BA degree is 14.76% for non-Hispanic white wives, 22.80% for Chinese wives, 43.06% for Filipino wives, 29.32% for Asian Indian wives, 16.93% for Japanese wives, 20.24% for Korean wives, 11.94% for Southeast Asian wives and 5.93% for Asian Pacific wives. These figures show that Filipino wives have the highest percentage of having a BA degree among all ethnic groups. Chinese, Japanese and Korean wives also have a higher percentage of having a BA degree than non-Hispanic white wives, except Southeast Asian and Asian Pacific wives.

The percentage of having some college education is 27.97% for non-Hispanic white wives, 19.82% for Chinese wives, 24.94% for Filipino wives, 17.97% for Asian Indians, 28.08% for Japanese wives, 21.60% for Koreans, 24.99% for Southeast Asian wives and 29.08% for Asian and Pacific wives. While Asian and Pacific wives have a higher percentage of having some college education than other racial groups, Asian and Pacific wives have the lowest percentage of having a Ph.D. degree, MA degree and BA degree. Finally, Japanese, Korean and Asian Pacific wives tend to have a higher percentage (34.57%, 31.69% and 33.23% respectively) of having a high school degree than other racial group (i.e., 22.44% for non-Hispanic white wives, 16% for Chinese wives, 12.06% for Filipino wives and 21.27 for Southeast Asian wives). To sum up, the above results are generally consistent with previous findings

that immigrant Asian American women tend to have higher levels of educational attainment than immigrant non-Hispanic white women.

Assimilation: Length of Immigration and English Proficiency

Length of immigration and English proficiency are other important human capital endowments that affect adaptation or assimilation of immigrant wives in the U.S. Table 1 shows that most immigrant wives arrived between 1987-1990 except for Pacific wives. Non-Hispanic white and Japanese wives are two large groups of recent arrivals. 79.87% of immigrant Japanese wives and 78.73% of immigrant non-Hispanic white wives arrived in the United States between 1987 and 1990, as opposed to Asian and Pacific wives who arrived mostly before 1965 (66.17%). The percentage of other recent arrivals is 54.60% for Chinese, 61.45% for Filipino wives, 53.32% for Asian Indian wives, 58.69% for Korean wives, 56.82% for Southeast Asian wives and 13.65% for Asian and Pacific Islanders. With respect to those who arrived in the U.S. before 1965, the percentage is 12.88% for non-Hispanic white wives, 20.14% for Chinese wives, 16.44% for Filipino wives, 20.90% for Asian Indian wives, 11.56% for Japanese wives, and 11.21% for Southeast Asian wives.

The groups also differ by their English proficiency. 7.3% of immigrant Chinese wives report that they do not speak English well, while only 0.21% of Filipino wives report that they do not speak English well. The percentage of low English proficiency is 4.6% for non-Hispanic white wives, 0.82% for Asian Indian

wives, 0.87% for Japanese wives, 2.68% for Korean wives and 1.48% for Asian and Pacific wives.

These findings illustrate two patterns. First, the different levels of persons' English proficiency may reflect cultural diversity across racial groups. Asian Indians and Filipinos are two major groups not influenced by Confucianism and have a long history of Western colonization; English thus became an important language in both countries (Min 1995), which is also one of their human capitals that might lead to the socioeconomic success of immigrant Asian American wives. Second, the diversity of education, length of immigration and English proficiency might reflect each ethnic group's occupational diversity, which in turn results in differentials in their income attainment and the decision of amount of employment.

Labor Market Characteristics: Occupations

An important factor that reflects variations in human capital resources among immigrants is occupation. Again, Table 1 reveals that Asian Indian wives stand out as the group with the highest percentage (47.35%) of working as a professional, technician or manager among all groups. Also, 43.45% of Filipino wives and 40.27% of Korean wives and a large proportion of Chinese wives are professionals (39.50%), compared to non-Hispanic white wives (30.23%). Only 24.79% of Southeast Asian wives and 23.57% of Asian and Pacific wives are professionals. However, a fairly large proportion of Chinese and Korean wives are low-level service workers,

operators and blue-color laborers, in addition to Southeast Asian wives and non-Hispanic white wives.

Overall, most Asian immigrant wives are more likely to work as a professional than immigrant non-Hispanic white wives. These results do not seem to support the split labor market hypothesis that due to racial discrimination, most immigrant wives tend to work in the secondary labor market. However, it is noteworthy that a large proportion of Asian immigrant wives, especially Southeast Asian and Asian and Pacific wives, are more likely to work as an operator or a blue-collar laborer, compared to immigrant non-Hispanic white wives, reflecting their lower levels of education and English proficiency.

Regional Differences

In spite of the notable differentials in wages, educational attainment and occupations, Table 1 reveals that a consistently residential pattern emerges among most immigrant wives. Asian immigrant wives heavily concentrate in the Pacific area, except for Asian Indian wives (21.47%) and non-Hispanic wives (25.19%). More than 50% of foreign-born Asian and Pacific, Japanese and Filipino wives live in the Pacific area. The percentage of living in the Pacific area is 73.29% for Asian and Pacific wives, 64.13% for Filipino wives and 54.28% for Japanese wives. More than 40% of foreign-born Chinese, Korean and Southeast Asian wives live in Pacific area. The percentage of living in Pacific area for Chinese wives is 47.84%, 41.93% for

Southeast Asian wives and 40.95% for Korean wives. Although, in the past, Asian immigrants heavily concentrated in the Pacific area, an increasing number of Asian immigrants reside in Northeast and South areas for the past two decades. A large proportion of Asian Indian wives (36.98%), Chinese wives (28.37%), and non-Hispanic white wives (29.01%) live in Northeast area. By contrast, only 3.56% of Asian and Pacific wives reside in Northeast area. The percentage of residing in the Northeast for the remaining groups is 10.92% for Filipino wives, 12.60% for Japanese wives, 19.97% for Korean wives and 11.81% for Southeast Asian wives. Turning to the South area, the percentage of residing in the South is 27.61% for non-Hispanic white wives, 30.57% for Southeast Asian wives, 24.40% for Asian Indian wives, 23.58%, for Korean wives, 18.05% for Japanese wives, 14.18% for Chinese wives and 13.70% for Filipino wives. Only 8.10% of Asian and Pacific wives reside in the South.

Another area with an increasing proportion of Asian immigrants is the Midwest area. The percentage of living in the Midwest is 13.87% for non-Hispanic white wives, 6.99% for Chinese wives, 8.75% for Filipino wives, 15.75% for Asian Indian wives, 9.03% for Japanese wives, 11.36% for Korean wives and 11.03% for Southeast wives. Only 4.75% of Asian and Pacific wives live in the Midwest. Overall, the above findings suggest several noteworthy points regarding the residential patterns of immigrant wives. First, the high level of residential concentration of Asian immigrant wives in the Pacific area might reflect the

possibility that most Asian wives are recent immigrants with lower level of English proficiency, which implies that they may be more likely than non-Hispanic white wives to reside in areas where Asian ethnic enclaves exit. However, this phenomenon often changes once immigrant wives improve their English proficiency over time.

Family Characteristics

Another important aspect that contributes to substantial differentials in socioeconomic attainment of immigrant wives lies in variations in immigrant family conditions. Regarding the influence of the economic condition of immigrant families, husband's wages are one of the family factors that might affect variations in their wives' amount of labor market participation. The average hourly wage rate is $18.02 for non-Hispanic white husbands, $17.91 for Chinese husbands, $18.49 for Filipino husbands, $23.34 for Asian Indian husbands, $29.04 for Japanese husbands, $20.37 for Korean husbands, $14.88 for Southeast Asian husbands, and $11.69 for Asian Pacific husbands.

The results suggest 1) that Japanese and Asian Indian husbands stand out as the group with the highest mean hourly wages; 2) that most Asian husbands earn more money than non-Hispanic white except Chinese, Southeast Asian and Asian Pacific husbands; 3) that, similar to their wives, Southeast Asian and Asian Pacific husbands have the lowest average wages.

Overall, in comparison to the mean wages of their wives, two patterns emerge from the findings. First, both immigrant Asian wives and husbands tend to earn more

money than immigrant non-Hispanic white wives and husbands, except Southeast Asians and Asian and Pacific Islanders. Second, immigrant husbands tend to make more money than their wives across all racial groups, suggesting that notable differences regarding racial stratification and gender stratification still present in the U.S. labor market.

With respect to immigrant husbands' human capital in 1990 PUMS sample, Asian Indian husbands again stand out as the group with the highest percentage (22.19%) of having a Ph.D. degree and a MA degree (28.23%) among all racial groups. The second highest group of having a Ph.D. (17.38%) and a MA (15.24%) degree is Chinese husbands. The third highest group is Koreans husbands—i.e., 10.79% of Ph.D., 15.08% of MA degree. Japanese husbands stand as the fourth group—i.e., 10.55% of Ph.D., 14.29% of MA degree. Again, Southeast Asian and Asian Pacific husbands have a lower percentage of having a Ph.D. and MA degree. Regarding having a BA degree, Japanese husbands are more likely to have completed a BA degree (44.00%) than all racial groups. The percentage of having a BA degree is 38.20% for Filipino husbands, 29.72% for Korean husbands, 26.25% for Asian Indian husbands, 22.69% for Chinese husbands, 14.04 for non-Hispanic white husbands and 7.55% for Asian/Pacific husbands.

Further, regarding having some college education, Asian Pacific husbands are more likely to receive some college education (49.58%) than all racial groups. The second highest groups is Filipino husbands (38.20%), the third group is Southeast

Asian (29.19%), the fourth Korean husbands (23.52%), the fifth non-Hispanic white husbands (22.09%), the sixth Chinese husbands (19.71%), the seventh Japanese husbands (18.69%), and the last Asian Indian husbands (8.38%). Finally, regarding having a high school degree, Pacific husbands stand out as the group with the highest percentage of having a high school degree (37.59%). The second highest group of having a high school degree is Korean husbands (20.88%), the third group is non-Hispanic white husbands (17.83%), the fourth is Southeast Asian husbands (16.49%), the fifth Chinese husbands (15.24%) and the last group is Asian Indian husbands (8.38%).

In comparison to their wives' educational attainment, two patterns emerge from these findings. First, most Asian wives and husbands (except Southeast Asians and Asian/Pacific Islanders) tend to have higher levels of education such as Ph.D., MA and BA degrees than non-Hispanic whites, implying that Asian Americans generally value the importance of education more than non-Hispanic whites. Second, immigrant husbands tend to have more education than their wives at all educational levels and across all groups, implying notable differentials regarding education stratification and gender stratification existing in the U.S. labor market. Third, differentials in educational levels among ethnic groups might also reflect differentials in occupational variations and their levels of income attainment.

Family constraints, especially the presence of young children, play a vital role in immigrant wives' decision on the amount of time they can devote to work in labor

market. Regarding having children under age five, most Asian wives (except Japanese wives) are more likely to have kids under age five than non-Hispanic white wives. The percentage of having kids under age five is as the following: 21.92% for Chinese, 25% for Filipinos, 24.38% for Asian Indians, 11.86% for Japanese, 21.30% for Koreans, 25.84% for Southeast Asians, and 31.75% for Asian and Pacific Islanders.

In general, the majority of both Asian immigrant wives and non-Hispanic white wives have less than two kids over age five. The data reveal that Asian Indian wives (57.13%) and Korean wives (54.48%) are more likely to have less than two kids over age five than the rest groups. The percentage of having less than two kids over age five is 48.01% for Chinese, 49.46% for Filipinos, 42.51% for Japanese, 45.48% for Southeast Asian, 47.77% for Asian and Pacific wives, and 47.95% for non-Hispanic white wives.

By contrast, there is some differential in having more than two children over age five, compared to non-Hispanic white wives. Filipino, Asian and Pacific and Southeast Asian wives tend to have more than two kids over age five, while Chinese, Asian Indian, Japanese and Korean wives are less likely to have more than two kids over age five. 29.38% of Asian and Pacific wives and 23.73% of Southeast Asian wives are more likely to have more than two kids over age five than other groups, while Japanese wives are the least likely group to have more than two kids over age five than other groups. The data reveal slight differences between non-Hispanic white

wives (12.15%) and several Asian groups (i.e., 11.55% for Koreans, 11.79% for Asian Indians, 13.07% for Chinese, and 17.80% for Filipinos).

These results indicate several interesting patterns. First, the similarities of having less than two kids over age five across all groups are more striking than differences among groups: 1) About 50% of each group has less than two kids over age five; 2) excepting Southeast Asian and Asian and Pacific wives, about 20% of each group has young children; 3) Southeast Asian and Asian and Pacific wives are more likely to have either less than or more than two kids over age five then all other groups; and 4) the presence of younger or older children might reflect variations in family size, hours worked in the labor market and their wages.

There is some variation in family size across groups. While Chinese, Filipino, Asian Indian, Southeast Asian and Asian and Pacific immigrant wives on average have a larger family size than non-Hispanic white wives, Japanese and Korean wives have a smaller mean family size. The average family size for each group is: 3.84 for non-Hispanic whites, 3.95 for Chinese, 4.27 for Filipinos, 4.03 for Asian Indians, 3.03 for Japanese, 3.76 for Koreans, 4.42 for Southeast Asians and 4.98 for Asian and Pacific Islanders. In sum, the above findings seem to suggest that some Asian immigrant groups have reached consistent socioeconomic status with foreign-born non-Hispanic white wives, supporting the “model minority” thesis.

4.2 Socioeconomic Characteristics of Native-Born Asian American and Non-Hispanic White Wives and their Husbands

Table 2 shows individual and labor market characteristics for native-born wives and husbands using 1990 PUMS 5% data. The sample consists of 242,426 non-Hispanic whites, 1,687 Chinese Americans, 1,290 Filipino Americans, 3,946 Japanese Americans, 101 Asian Indian Americans, 141 Korean Americans, 272 Southeast Asian Americans and 1,462 Asian and Pacific Islanders.

Hourly Wages

The average hourly wage rate is $11.54 for non-Hispanic white wives, $17.66 for Chinese American wives, $13.20 for Filipino wives, $14.42 for Asian Indian wives, $14.84 for Japanese wives, $13.57 for Korean wives, $12.90 for Southeast Asian wives, and $12.63 for Asian and Pacific wives. These findings indicate that on average almost all native-born Asian American wives earn more money than non-Hispanic white wives, and that native-born Chinese American wives stand out as the group with the highest average wage rate, followed by Japanese and Asian Indian wives.

Human Capital: Educational Attainment

Regarding educational attainment, Table 2 illustrates notable differentials in levels of education across all racial groups. The percentage of having a Ph.D. degree is 1.74% for native-born non-Hispanic white wives, 5.93% for Chinese wives, 1.63% for Filipino wives, 10.89% for Asian Indian wives, 2.82% for Japanese wives, 8.51%

for Korean wives, 2.50% for Southeast Asian wives and 1.03% for Asian Pacific wives. These finding suggest that most native-born Asian wives, except Filipinos and Asian and Pacific Islanders, are more likely to have Ph.D. degree than native-born non-Hispanic white wives. The results also suggest that, like immigrant Asian Indian wives, native-born Asian Indian wives have the highest percentage of having a Ph.D. degree, followed by native-born Chinese wives. In addition, native-born Southeast Asian and Asian Pacific wives are in a pattern similar to the foreign-born: the least likely to have a Ph.D. degree, compared to non-Hispanic white wives.

Further, the percentage of having a MA degree is 6.11% for non-Hispanic white wives, 12.51% for Chinese wives, 3.57% for Filipino wives, 14.85% for Asian Indian wives, 8.36% for Japanese wives, 5.67% for Korean wives, 6.50% for Southeast Asian wives, and 2.94% for Asian Pacific wives. Again, Asian Indian wives are more likely to have a MA degree than all other racial groups, followed by Chinese wives.

Regarding the BA degree, the percentage of having a BA degree is 16.02% for non-Hispanic white wives, 36.87% for Chinese wives, 16.20% for Filipino wives, 24.75% for Asian Indian wives, 29.36% for Japanese wives, 28.37% for Korean wives, 24.00% for Southeast Asian wives and 8.34% for Asian Pacific wives. These figures show that most native-born Asian wives are much more likely to have a BA degree than native-born non-Hispanic white wives. They also reveal that native-born

Chinese wives have the highest percentage of having a BA degree among all racial groups.

The percentage of having some college education is 31.46% for non-Hispanic white wives, 27.86% for Chinese wives, 38.60% for Filipino wives, 17.82% for Asian Indians, 34.55% for Japanese wives, 27.66% for Koreans, 37.50% for Southeast Asian wives, and 33.58% for Asian and Pacific wives. These results indicate that Filipino, Japanese, Southeast Asian and Asian Pacific wives are more than likely to have some college education than non-Hispanic white wives. Regarding high school degree, native-born Hispanic white wives are more likely to have a high school degree than most native-born Asian wives except Asian and Pacific wives. The percentage of having a high school degree of native-born American wives is 34.73% for non-Hispanic white, 14.17% for Chinese, 28.68% for Filipinos, 22.19% for Japanese, 20.79% for Asian Indians, 22.70 for Koreans, 17.00% for Southeast Asians, and 40.77% for Asian and Pacific wives. Overall, like immigrant Asian wives, native-born Asian wives tend to have more education than non-Hispanic white wives. To sum up, the above results are generally consistent with the conventional view that Asian American women in generally have a higher level of educational attainment.

Labor Market Characteristics: Occupations

Table 2 reveals that native-born Asian Indian (50.78%) and Chinese (46.64%) are more likely to work as a professional, technician or manager than native-born non-Hispanic white wives (38.84%). On the contrary, although a fairly large

proportion of native-born Korean wives and Southeast Asian wives work for blue-collar labor jobs, native-born non-Hispanic white wives are more likely to work as a clerical worker or a blue-collar laborer than most native-born Asian American wives. The percentage of being a laborer is 8.61% for native-born non-Hispanic whites, 0.68% for Chinese, 1.33% for Filipinos, 2.47% for Japanese, 3.88% for Asian Indians, 6.13% for Koreans, 6.71% for Southeast Asians and 2.23% for Asian and Pacific wives.

In short, most native-born Asian wives are more likely to work as a professional than native-born non-Hispanic white wives. These results do not seem to support the split labor market hypothesis that due to racial discrimination, most Asian wives tend to work in the secondary labor market.

Regional Differences

Like immigrant Asian wives, most native-born Asian American wives heavily concentrate in Pacific area, except Asian Indian wives. The percentage of residing in the Pacific area is 68.86% for Chinese, 80.47% for Filipinos, 85.97% for Japanese, 62.41% for Koreans, 43% for Southeast Asians, 79.96% for Asian and Pacific wives, while only 17.82% of Asian Indian wives and 12.40% of non-Hispanic white wives live in the Pacific area. While most native-born Asian wives tend to live in the Pacific area, Asian Indian wives are more likely live in the South (34.65%) and the Northeast (27.72%) than non-Hispanic white wives and other Asian groups.

Compared with the residential pattern of immigrant Asian wives, the above findings suggest that both native-born and foreign-born Asian wives heavily reside in the Pacific area, regardless of their English proficiency and length of immigration. This pattern does not seem to support the ethnic enclave thesis that immigrants are more likely than the natives to reside in ethnic areas for jobs and living.

Family Characteristics

Another important aspect that contributes to substantial variations in socioeconomic attainment of native-born Asian wives lies in variations in their family conditions. Regarding the influence of economic condition of Asian families, husband's wages are one of the important family factors that influence Asian wives' decision on how much time they can devote in the labor market. The average hourly wage rate is $18.13 for non-Hispanic white husbands, $22.80% for Chinese husbands, $17.40 for Filipino husbands, $22.19 for Japanese husbands, $20.12 for Asian Indian husbands, $18.76 for Korean husbands, $14.67 for Southeast Asian husbands, and $15.54 for Asian Pacific husbands.

The data suggest several interesting patterns. First, while both native-born and immigrant husbands tend to earn more money than non-Hispanic whites, Southeast Asian husbands and Asian and Pacific husbands earn less than non-Hispanic whites. Second, the average hourly wage rate of husbands of native-born Asian wives slightly edges ahead of their wives across all groups. Third, unlike Chinese husbands of

immigrant wives, native-born Chinese husbands stand out as the group with the highest average hourly wages, followed by native-born Japanese and Asian Indian husbands. Fourth, compared with immigrant husband's wages, native-born Filipino, Japanese and Asian Indian husbands tend to earn less money than their immigrant counterparts.

Similar to immigrant husbands, native-born Asian husbands have substantially more education than native-born non-Hispanic white husbands, while Southeast Asian and Asian and Pacific husbands have much less education than native-born non-Hispanic white husbands. Among all groups, like immigrants, native-born Asian Indian husbands again stand out as the group with the highest percentage (18.97%) of having a Ph.D. degree, a MA degree (22.43%), followed by Chinese husbands' Ph.D. degree (13.53%) and MA degree (14.07%). The third group is Korean husband (i.e., 9.52% of Korean husbands having a Ph.D. and 11.60% of having a MA degree). Japanese husbands stand as the forth group (where 7.23% have a Ph.D. and 8.70% have a MA degree).

Regarding having a BA degree, except for Asian and Pacific husbands, native-born Asian husbands are more likely to have a BA degree than native-born non-Hispanic white husbands. The percentage of having a BA degree is 32.62% for Chinese, 30.08% for Japanese husbands, 28.33% for Korean husbands, 20.30% for Asian Indian husbands, 18.42% for Filipino husbands, and 18.11% for Southeast Asian husbands, while the percentage of having a BA degree for non-Hispanic white

husbands is 17.55%. Regarding having some college education, although native-born Asian/Pacific husbands have much less higher education than other Asians and non-Hispanic whites, they are more likely to receive some college education (40.43%) and high school degree (43.98%) than other groups.

In comparison with their wives' educational attainment, two patterns emerge from these findings. First, most foreign-born and native-born Asian wives and husbands (except Southeast Asians and Asian/Pacific Islanders) have substantially higher levels of education than non-Hispanic whites, implying that Asian Americans generally value the importance of education more than non-Hispanic whites. Second, both immigrant and native-born husbands have much more education than their wives at all educational levels and across all groups, suggesting notable differentials in the interactive effect of education stratification and gender stratification on differentials in income attainment in the U.S. labor market. Third, variations in educational levels across racial groups might also reflect variations in occupations both immigrant and native-born Asian wives are in and their levels of income attainment.

The Presence Children

Similar to immigrant Asian wives, all native-born Asian groups, except Japanese and Koreans, have more children under age five than non-Hispanic white wives. The percentage of having children under age five is 28% for Southeast Asians, 27.09% for Chinese, 27.21% for Filipinos, 22.77% for Asian Indians, 22.23% for Asian and Pacific Islanders, 18.62% for Japanese and 19.53% for non-Hispanic white

wives. Like immigrant Asian wives, the gap of having less than two kids over age five between native-born Asian American wives and non-Hispanic white wives is not very substantial. Except for Korean wives, more than 40% of American wives have children under age five. The percentage of having children under age five is 42.03% for Chinese, 49.84% for Filipinos, 45.93% for Japanese, 45.54% for Asian Indians, 40.50% for Southeast Asians, 48.97% for Asian and Pacific wives, 36.88% for Koreans and 46.90% for non-Hispanic white wives.

However, there is some difference in having more than two children over age five across groups. Asian Indian, Filipino, Asian and Pacific and Southeast Asian wives are more likely to have more than two kids over age five, compared to non-Hispanic white wives, while Chinese, Japanese and Korean wives have much less kids over age five. The percentage of having more than two kids over age five is 4.96% for Koreans, 5.69% for Chinese, 7.44% for Japanese, 10.89%for Asian Indians, 12.09% for Filipinos, 21.48% for Asian and Pacific wives, and 8.91% for non-Hispanic white wives.

There is slight difference in family size across groups. While native-born Filipino, Asian Indian, Southeast Asian and Asian and Pacific wives, on average, have a larger family size than non-Hispanic white wives; Chinese, Japanese and Korean wives have a smaller mean family size. The average family size for each group is 3.40 for non-Hispanic whites, 3.28 for Chinese, 3.87 for Filipinos, 3.60 for

Asian Indians, 3.29 for Japanese, 3.01 for Koreans, 3.36 for Southeast Asians and 4.35 for Asian and Pacific Islanders.

In conclusion, the above findings seem to suggest that the educational levels and the average wages of most native-born Asian groups, except Southeast Asian and Asian Pacific wives, are generally greater than native-born non-Hispanic white wives, supporting the "model minority" thesis. However, a comparison of sample means and percentages does not reveal the extent to which individual and labor market characteristics account for variations in income attainment across different racial groups. Therefore, it is important to examine the causes of wage differentials across racial groups. In the next chapter, I will discuss the OLS estimates of the regression of log-wage for foreign-born and native-born Asian American wives, respectively.

Chapter Five

OLS Estimates of the Log-Hourly Wages Regression of Foreign-Born Asian American and Non-Hispanic White Wives

The main goal of this chapter is to interpret and compare how disparities in individual and structural characteristics result in wage differences between immigrant Asian American women and non-Hispanic white women as well as wage differences among immigrant Asian groups.

The OLS Pooled Regression Model of Log of Hourly Wage Rate

The estimates of the OLS pooled regression model of log of hourly wage rate are shown in Table 3A. As expected, hours worked are statistically significant any at any conventional levels with a negative sign. The slope coefficient of hours worked is -0.152, which implies a 1% increase in the hours worked reduces the hourly wage rate by 14.1%.

Regarding education effect, the results in Table 3A indicate a large effect of education. For instance, the coefficient for being a college graduate is 0.38, implying that having a BA degree earns about 46.2% more than a high school dropout. The coefficient of having a MA degree is 0.601, which implies a net effect (relative to a high school dropout) of 82.3%. The coefficient of having a Ph.D. degree is 0.72, implying that a person with a Ph.D. degree earns about 105.4% more than a person who did not finish his/her high school education.

Turning to the race effect, the net disadvantages for being a Korean wife appear to support the structural discrimination thesis, although the magnitude of being disadvantaged is not very large. The coefficient for a Korean wife is -0.01, implying a net effect (relative to a non-Korean wife) of -0.09%. By contrast, for Chinese, Filipino, Asian Indian, Japanese and Southeast Asian American wives, the results apparently do not support the racial discrimination hypothesis, the net race effect on the hourly wage rate varies across these groups. For example, for Chinese American wives, the coefficient is 0.002, which implies a Chinese wife earns about 0.2% more than a non-Chinese wife.

Regarding family factors, most family factors, most family factors do not seem to have a significant effect on the hourly wage rate, except for the presence of young kids. For example, family economic condition, family size, husband's educational levels, husband's hourly wage rate are not statistically significant at conventional levels. The coefficients for having two kids or more than three kids over age five are -0.09 and -0.181, implying that having two or more than three kids age over five decreases the hourly wage rate of women by about 8.6% and 16.6% respectively. However, surprisingly, having two or less kids under age five is not statistically significant at any conventional levels.

Table 3A also indicates that living in the Pacific, Northeast, South and Midwest areas has a positive effect on the hourly wage rate. The coefficients for these areas are 0.184 for the Northeast area, 0.039 for the South area, 0.193 for the Pacific

area and 0.03 for the Midwest area. Finally, English speaking ability, and occupations are statistically significant at conventional levels with a proper sign.

In order to examine how the individual and structural characteristics lead to wages differences across racial groups, several separate OLS regression models of log of hourly wage rate are estimated for each group.

The Amount of Employment: Log of Hours Worked

Immigrant women's hours worked substantially contributes to wage variations across groups. As expected, the amount of employment is statistically significant and has a negative sign across all groups, supporting the hypothesis that the amount of employment inversely relates to hourly wage rates for immigrant women. The elasticity of hours worked is –0.344 for Korean, -0.299 for Filipino, -0.206 for Southeast Asian, -0.202 for Chinese, -0.157 for Japanese, -0.155 for Asian Indian, while it is –0.168 for non-Hispanic white women. The results of the amount of employment suggest 1) that a 1% increase in the amount of employment reduces the hourly wage rate by 29% for Korean women, 2) that a 1% increase in the log of hours worked leads to just about 26% decrease in the log of hours wages for Filipino women, 3) that when the log of hours worked arises by 1%, the predicted log of hourly wages declines by 19% for Southeast Asian, by 18% for Chinese, by 15% for Japanese and by 13% for Pacific women, while a 1% decreases in the log of hours worked causing the log of hourly wages to decline by 15% for non-Hispanic white women.

These findings reveal several socioeconomic adjustment patterns of immigrant women First, Asian women do not necessarily work more hours than non-Hispanic white women, given the fact that the higher wage returns to their higher educational levels. Second, Korean women stand out as the group with the highest wage advantages than other Asian groups.

Human Capital: Educational Attainment

Table 3 presents the OLS estimates of the pooled regression models using the 1990 PUMS data. As expected, educational levels reveal a positive and nonlinear effect on wages. Almost all educational levels are statistically significant at the 0.0001 level across immigrant groups, except for foreign-born Pacific women.

With respect to the Ph.D. level, Asian Indian, Korean, Chinese and Southeast Asian women have a greater advantage, relative to non-Hispanic white women. However, Japanese Ph.D. and Filipino Ph.D. have a wage disadvantage, relative to a non-Hispanic white Ph.D. While the coefficient of having a Ph.D. degree is 1.307 for Asian Indian, 0.968 for Korean, 0.75 for Chinese, 0.729 for Southeast Asian, 0.613 for Japanese, 0.607 for Filipino, it is 0.661 for non-Hispanic white women. These results suggest a net effect of 270% for Asian Indian, 163% for Korean, 112% for Chinese, 107% for Southeast Asian, 85% for Japanese, 84% for Filipino, while the net effect is 66% for non-Hispanic white women. Again, Asian Indian women enjoy the greatest wages advantage at the Ph.D. level, followed by Korean and Chinese Ph.D. women. Therefore, in terms of returns to having Ph.D. degree, most immigrant

Asian women do not appear to face a notable net disadvantage due to their ethnicity, other things being equal.

Of those having a MA degree, foreign-born Chinese women stand out as the group with the highest wage returns to their MA degree, followed by Filipino, Korean and Southeast Asian women. By contrast, Japanese, Asian Indian, Korean and Asian Pacific women have more wage disadvantages than non-Hispanic white women with a MA degree. Table 3 shows that the coefficient of having a MA degree is 0.57 for Southeast Asian, 0.56 for Chinese, 0.53 for Filipino, 0.50 for Japanese, 0.44 for Korean, 0.24 for Asian Pacific women and 0.44 for non-Hispanic white women. The corresponding net effect for having a MA degree is 77% for Southeast Asian, 75% for Chinese, 70% for Filipino, 64% for Japanese, 47% for Asian Indian women, while it is 56% for non-Hispanic white women. Thus, except for Asian Indian and Pacific women, most immigrant Asian women earn more than non-Hispanic white women at the MA level of education.

For college graduates, such as those with some college education and high school graduates, the results show that wage returns to education for foreign-born Asian American women are not smaller than non-Hispanic white women at the same levels of education. Regarding wage returns to having a BA degree, most immigrant Asian women (except Asian Indian and Pacific women) are advantaged in the labor market, relative to non-Hispanic white women. Regarding rewards to some college education and to a high school degree, immigrant Asian women do not receive lower

returns to their education across all Asian groups except for Pacific wives. The net effect of having a BA degree is 55% for Southeast Asian, 54% for Japanese, 48% for Filipino, 45% for Chinese, 37% for Korean and non-Hispanic white women. Further, the net effect of having some college education is 26% for Korean, 23% for Filipino, 22% for Southeast Asian, 21% for Asian Indian, 20% for Chinese and 19% for non-Hispanic white women. Finally, the net effect of having a high school degree is 16% for Asian Indian, 12% for Filipino, 11% for Japanese, 6.3% for Korean, 6.2% for Southeast Asian, 5.2% for Chinese and 4.8% for non-Hispanic white women.

Moreover, the above results reveal differences in education across all educational levels and across all groups—i.e., the higher the educational level, the larger the returns to education for all immigrant women, other things being equal. For example, the coefficient for being a Chinese with a Ph.D. degree is 0.75, implying that a Chinese Ph.D. earns about 112% more than a high school dropout. The coefficient of a Chinese MA is 0.558, implying a net effect of a 75% wage advantages, relative to a high school dropout. The coefficient of a Chinese BA is 0.370, implying that a Chinese BA earns about 45% more than those who do not finish their high school education. Similarly, having some college education is more advantaged by 20%, compared to those who have less than twelve years of education. In comparison to other Asian groups, foreign-born Asian Indian women stand out as the group that enjoys the highest wage advantages at the level of having a Ph.D. or a

high school degree, while the returns to education for them seem to be disadvantaged at the MA, BA and some college levels relative to other immigrant Asian women.

It is important to note that although Chinese, Filipino, Japanese, Korean and Southeast Asian women do not have as many Ph.D.s as Asian Indian, they fare well at other levels of education. Thus, they are not necessarily disadvantaged relative to Asian Indian women. Also, it is notable that the wage gap among Asian women is not as large as the wage gap between non-Hispanic white women and Asian women.

To sum up, regarding the education effect on wage differentials, the findings reveal several important implications. First, the education effect is statistically significant across all educational levels and all groups, except for Pacific wives. Second, the coefficient of each educational level indicates a substantial non-linearity effect on wages, supporting the hypothesis that the effect of education on wages varies across levels of education. Third, all educational levels reveal a positive effect on the hourly wages across all groups, except for Asian and Pacific women, supporting the hypothesis that education links positively to wages. Fourth, this analysis finds *little* evidence to indicate that most immigrant Asian American women must have more education than non-Hispanic white women in order to receive equivalent wages. Overall, foreign-born Asian American women either earn wages equivalent to, or in excess of, foreign-born non-Hispanic white women.

Assimilation: Length of Immigration and English Proficiency

Of those immigrants who have migrated to the U.S. for less than five years, length of immigration is negatively associated with wages and is statistically significant for most immigrant women. However, recent immigration is not statistically significant for Japanese and Pacific women. The coefficient of recent immigration for non-Hispanic white women is –0.049, implying that recent immigrant non-Hispanic white woman earns just about 4.8% less than those who immigrated to the U.S. before 1965.

In addition, the slope coefficient of length of immigration for less than five years is –0.117 for Chinese, -0.177 for Korean, -0.21 for Filipino and –0.25 for Asian Indian women, implying a net effect of -11% for Chinese, -16% for Korean, -19% for Filipino and –22% for Asian Indian women. These findings indicate several things: 1) recent immigrant women have a greater wage disadvantage than those who migrated to the U.S. before 1965; 2) Immigrant Asian minorities have more wage disadvantages than immigrant non-Hispanic white women; 3) Among Asian ethnic groups, Chinese and Korean women earn more money than Filipino and Asian Indian women. In short, these results apparently support the assimilation hypothesis that recent immigrants earn less than those who migrated to the U.S. before 1965, and that Asian immigrant women have more wage disadvantages than non-Hispanic white women.

By contrast, the assimilation hypothesis proposes that wage disadvantages of minorities often reduce over time because most immigrants become increasingly able

to cope with the culture and life style in the host society. Results in this study support this proposition. In comparison to recent immigrants, the coefficients of immigration for more than ten years are positively related to wages and are statistically significant across all groups except for Asian and Pacific women. Interestingly, immigrant Asian women, except Southeast Asian and Pacific Islanders, are more advantaged than non-Hispanic white women once Asian women migrated to the U.S. for more than ten years. For example, Korean and Asian Indian women stand out as the two groups with the highest advantages in wages, relative to all other immigrant women. Chinese and Filipino immigrant women earn approximately equal wages.

Regarding English speaking ability, results in Table 3 indicate that the effect of poor English proficiency on the average hourly wages is negative for most immigrant women, while the effect of good English proficiency is positive for all immigrant groups. Nevertheless, the results reveal substantial variations in English speaking ability across groups. For instance, the slope coefficient of poor English proficiency is –0.404 for Japanese, -0.188 for Chinese and -0.186 for non-Hispanic white, while it is not statistically significant for the rest groups. These findings imply a net effect of –33% for Japanese, -17% for Chinese and non-Hispanic white women, suggesting that immigrant Japanese suffer the greatest disadvantages than other groups. By contrast, regarding good English proficiency, Table 3 shows that the effect of good English proficiency is significant only for Chinese, Asian Indian and Filipino women who apparently earn more than non-Hispanic white women.

However, it is worth noting that the coefficient of poor English proficiency is positive and statistically significant for Asian Indian women. This finding seems to belie most previous findings. Further research is thus necessary to shed light on different causal mechanisms resulting in wage differences among immigrant women.

Labor Market Characteristic: Occupations

Empirical results in Table 3 regarding occupations indicate that the gap of occupational differences in wages is greater between Asian women and non-Hispanic white women than among Asian groups. Also, the disparity among occupational categories is more substantial for non-Hispanic white women than for Asian women. The slope coefficient of working in the professional/managerial/technical occupations is 0.549 for immigrant non-Hispanic white, 0.238 for Asian Indian, 0.229 for Filipino, 0.187 for Southeast Asian, 0.175 for Chinese, and 0.110 for Japanese. The results imply a net of 73% for non-Hispanic white, 27% for Asian Indian, 26% for Filipino, 21% for Southeast Asian, 19% for Chinese, and 12% for Japanese. The net effects suggest that immigrant non-Hispanic white women benefit the most by finding employment in better-paid jobs, followed by immigrant Asian Indian, Filipino, Southeast Asian women. Chinese and Korean benefit less than other groups, while the negative sign of the coefficient (though not statistically significant) for immigrant Japanese might imply that Japanese women are more likely to face structural barriers than other immigrant women. Overall, in terms of being employed in the professional/managerial/technical occupations, immigrant Asian women earn much

less than immigrant non-Hispanic white women. Among Asian women, however, Asian Indian, Filipino and Southeast Asian women apparently enjoy a higher hourly wage rate than other Asian groups.

At the clerical job level, non-Hispanic white women have more wage advantages than all Asian women. The slope coefficient of having a clerical job is 0.34 for non-Hispanic white, -0.032 for Asian Indian, -0.045 for Filipino, and –0.159 for Japanese women. The results imply a net of 40% for non-Hispanic white, -3% for Asian Indian, -4% for Filipino, and –16% for Japanese working for the similar type of jobs.

Similarly, most immigrant Asian women are especially disadvantaged by working in sales, operations and labor jobs, relative to non-Hispanic white women who work in similar jobs. The coefficients of working as a sale worker, an operator, or a laborer are statistically significant with a negative sign across all immigrant Asian groups, while the coefficients of these occupations are statistically significant at the 0.0001 level with a positive sign for non-Hispanic white women. These results suggest that most immigrant Asian women apparently earn much less than immigrant non-Hispanic white women at all occupations. Among Asian women, again, Asian Indian wives are the least disadvantaged group for the high-skills jobs, though they do not benefit as much from other occupations. These results seem to support the structural discrimination hypothesis that immigrant minority women encounter racial discrimination in all types of occupations in the labor market.

Regional Differences

Several dummy variables of Region[26] are other important determinants of wage differences among immigrant women. As anticipated, Northeast and Pacific areas reveal a positive effect on wages, implying that immigrant Asian women benefit more from areas where most Asian Americans reside. Living in the Northeast area is statistically significant for all groups except for Asian and Pacific women. Also, living in the Pacific area is statistically significant for most immigrant women except for Asian Indian, Southeast Asian and Pacific women. The coefficient of living in the Northeast area is 0.35 for Japanese, 0.332 for Filipino, 0293 for non-Hispanic white, 0.247 for Korean, 0.137 for Chinese, 0.143 for Asian Indian and 0.144 for Southeast Asian. These findings imply a net effect of 42% for Japanese, 39% for Filipino, 34% for non-Hispanic white, 28% for Korean and 15% for Chinese, Asian Indian, and Southeast Asian women. In brief, only Japanese and Filipino earn more money than non-Hispanic white women residing in the Northeast area, while other Asian groups earn less than non-Hispanic white women living in the same area.

Regarding living in the Pacific area, as expected, most Asian women have a higher wage advantage relative to non-Hispanic white women. Among Asian groups, Japanese and Korean women earn a roughly equivalent amount of money, compared to other Asian women. However, living in the Pacific area does not have an effect on wages for Asian Indian, Southeast Asian and Asian and Pacific women. The

[26] Dummy variables of residential differences are the Northeast, Midwest, South and Pacific areas. The mountain area serves as the reference category.

coefficient of living in the Pacific area is 0.287 (a net effect of 33%) for Japanese, 0.271 (31%) for Korean, 0.196 (22%) for Chinese, 0.181 (20%) for Filipino, and 0.174 (19%) for non-Hispanic white women. The results imply a net effect of earning more money living in the Pacific area than living in the mountain area is 33% for Japanese, 31% for Korean, 22% for Chinese, 20% for Filipino and 19% for non-Hispanic white women.

In short, the results of regions reveal a common socioeconomic adaptation pattern of immigrant women. That is, most immigrant Asian women earn more by living in areas where most Asian Americans reside, confirming the ethnic enclave hypothesis that ethnic enclaves might have a positive effect on wages especially for immigrants whose short length of immigration and poor English proficiency may serve as a barrier for immigrant women in searching for jobs in the primary labor market. However, ethnic enclaves often compensate for this disadvantage by serving as a "sprint board" for an upward social mobility once immigrants improve their English speaking ability and adapt to the American life. Most of them are able to move out of ethnic enclave and work in the primary labor market earning more money.

Family Characteristics

Family Socioeconomic Condition

Turning to family's socioeconomic condition, results in Table 3 indicate that socioeconomic condition has a negative effect on the hourly wage rate only for Asian and Pacific women, while it has no effect for other groups of women.

The Presence of Young Children and Adult Members

The presence of young children and adult members in immigrant families also contribute to wage differences across groups. For example, having kids under age 5 does not affect immigrant women's wage rates similarly. It is negatively related to wages for Asian and Pacific women, whereas it is positively linked to wages for Chinese, Asian Indian, and non-Hispanic white women. The coefficient is –0.247 for Asian and Pacific women, implying that Asian and Pacific women earn just about 22% less than those who do not have any children. Nevertheless, unexpectedly, the coefficient is 0.067 for Chinese, 0.062 for Asian Indian and 0.048 for non-Hispanic white women, implying a net of 7% for Chinese, 6% for Asian Indian and 5% for non-Hispanic white women. This finding suggests that immigrant Chinese women with young kids earn about 7% more, Asian Indian women earn about 6% more and non-Hispanic white women earn about 5% more than women without any kids.

Further, having two or more than two kids age over 5 has a negative effect on wages for immigrant non-Hispanic white women, while it does not have much influence across Asian ethnic groups. The coefficient of having two or more than two kids age over 5 is –0.098 and –0.124 respectively for non-Hispanic white women,

suggesting a net effect of –0.09 and –0.12 (relative to those who do not have any kids and those who have kids under age 5).

The coefficient of family size is not statistically significant except for most Asian women, except for Chinese and Korean women. It is statistically significant and positively associated with Chinese and Korean women's hourly wage rates, as anticipated, suggesting that a one unit increase in family size, Chinese women's hourly wage rate is predicted to increase by 1.1%, while a Korean women's wage would increase by 0.2%.

Husband's Characteristics: Hourly Wage Rate and Educational Levels

Turning to husband's characteristics, the results in Table 3 indicate that husband's wages do not seem to have much effect on wife's wages for most immigrant women, except for Southeast Asian as well Pacific women. However, the sign of husband's wages varies between these two groups. For instance, husband's wages are negatively related to Southeast Asian wife's wages, while they are positively associated with Asian and Pacific wife's wages. This finding suggests that the more money Southeast Asian husbands earn, the less money their wife makes. By contrast, the more money a Pacific husband earns, the more a Pacific wife earns.

Like husband's wages, the coefficients of husband's educational levels are either statistically insignificant or small, except for Asian Indian and Filipino women. Further, the sign of husband's wages operates differently between these two groups. Husband's levels of education (except the MA degree) have a positive effect on

wife's wages for Asian Indian women, but they have a negative effect on wife's wages for Filipino women. The results partially support the hypothesis that husband's wages negatively link to wife's wages—i.e., the higher the husband's wage rates, the lower the wife's wage rates. However, husband's wages are positively related to wife's wages for Asian Indian women, suggesting that husband's wages encourage their wife to earn more money.

In conclusion, the OLS results of the log-wages regression of immigrant Asian American women reveal several things. First, the findings indicate a great deal of variations in hourly wages among immigrant wives, which imply that there are various patterns of socioeconomic adaptation across groups. Second, regarding educational attainment and the amount of employment, this analysis finds little evidence to support the conventional wisdom that, ceteris paribus, immigrant Asian women must have more education and work longer hours to earn consistent wages with immigrant non-Hispanic white women. Third, except for Pacific women, Immigrant Asian women actually earn more money at almost all educational levels than immigrant non-Hispanic white women. Fourth, the findings also support the assimilation hypothesis that the shorter length of immigration and a lower level of English proficiency increase the wage disadvantages for immigrant Asian women, while the disadvantages disappear once immigrant women improve their English speaking ability and cope with the life in the U.S. Fifth, residing in the Northeast and the Pacific areas support the ethnic enclave theory that Asian women, especially

immigrants, tend to have more advantages in areas where most Asian Americans reside, other things being equal. Six, though it is widely agreed that family factors are important determinants in influencing wages of immigrant women, the evidence offers little support for theories stressing direct impacts of family factors on wage differences among immigrant women.

Several points are worth of noting at the end of this chapter. First, although most results do not support the structural discrimination theory, some contradictory findings regarding variations in occupations exit in the OLS models[27]. For example, Asian women seem to be disadvantaged in all levels of occupations. However, this finding might imply that occupational levels reflect another labor market phenomena (i.e., whether Asian women are underrepresented in higher-ranking positions) instead of wage differences among immigrant women. Thus, occupations may not be a good indicator in interpreting and predicting wage differences among minority groups. Second, since the OLS results are obtained based on a *unidirectional* causal mechanism, it is possible that there is a simultaneity problem present in the OLS model resulting in inconsistent results or findings. Further tests on this problem will be discussed in Chapter Seven. Also, several complex causal models that take into account the reciprocal causation between hours worked and hourly wages are specified for each racial group. Before I discuss the reciprocal causal mechanism

[27] This study does not dispute that racial discrimination against minorities no longer exit in the U.S. labor market. Nor does this study seek to downplay the salience of family factors on wage differences among immigrant women.

using 2SLS, in the next chapter, I will discuss more OLS results regarding wages differences between *native-born* Asian American and non-Hispanic white women.

Chapter Six

OLS Estimates of the Regression of Log-Hourly Wages of Native-Born Asian American and Non-Hispanic White Wives

This chapter provides analysis on wages discrepancy between native-born Asian American women and non-Hispanic white women as well as among native-born Asian ethnic groups.

The Amount of Employment: Log of Hours Worked

Table 4 provides the OLS estimates of the pooled regression models for native-born Asian American and non-Hispanic white wives using the 1990 PUMS data. The hours worked of native-born Asian American wives substantially contributes to wage variations across groups. As expected, the hours worked is statistically significant at either 0.001 or 0.05 levels and with a negative sign across. The coefficient of the log of hours worked is –0.39 for Korean, -0.339 for Southeast Asian, -0.256 for Filipino, -0.253 for Chinese, -0.155 for Japanese, -0.214 for Asian Pacific women, while it is –0.139 for non-Hispanic white women. The results suggest 1) that a 1% increase in employment leads to 32% less in the log of hourly wages for Korean women, 2) that a 1% increase in the log of hours worked leads to about 29% decrease in the log of hours wages for Southeast Asian women, 3) that when the log of hours worked arises by 1%, the predicted log of hourly wages declines by 23% for Filipino women, by 22% for Chinese, by 19% for Asian/Pacific women and by 14%

for Japanese, while a 1% decreases in the log of hours worked causing the log of hourly wages to decline by 13% for non-Hispanic white women.

The findings of employment indicate several things. First, most native-born Asian American women are not more disadvantaged than native-born non-Hispanic white women because working longer hours does not increase the hourly wages. Second, Korean women stand out as the group that is least likely to work more hours than other groups since they have the highest disadvantages to work longer hours, followed by Southeast Asian, Filipino, Chinese and Japanese women. Therefore, the negative association between hours worked and hourly wages implies that native-born Asian American women do not necessarily work longer hours to earn consistent income with native-born non-Hispanic white women.

Human Capital: Educational Attainment

Without surprise, educational levels reveal a positive and nonlinear effect on wages. However, the effect of education varies substantially across groups. For example, at the Ph.D. level, the slope coefficient of having a Ph.D. does not have much influence on the hourly wages for native-born Asian Indian, Southeast Asian and Asian/Pacific wives. Also, a native-born Korean Ph.D. and Chinese Ph.D. are more advantaged than a native-born non-Hispanic white Ph.D. The coefficient of having a Ph.D. degree is 1.013 for Korean, 0.765 for Chinese, 0.494 for Japanese, 0.386 for Filipino, while it is 0.72 for non-Hispanic white women. These results suggest a net effect of 175% for native-born Korean, 115% for Chinese, 64% for

Japanese, 47% for Filipino, while the net effect is 105% for non-Hispanic white women. In brief, native-born Korean wives apparently enjoy the greatest wage advantages at the Ph.D. level, followed by Chinese Ph.D. and non-Hispanic white Ph.D. However, except for Chinese Ph.D., non-Hispanic white Ph.D. seems to have more wage advantages than Asian American Ph.D.

Regarding the MA degree level, again, native-born Korean women standout as the group with the highest returns to their MA degree, followed by Southeast Asian, Filipino and Asian/Pacific women. By contrast, Japanese and Chinese women are more disadvantaged than non-Hispanic white women with a MA degree. Table 4 shows that the coefficient of having a MA degree is 0.972 for Korean MA, 0.79 for Southeast Asian, 0.714 for Asian/Pacific women, 0.522 for Chinese, 0.394 for Japanese, while it is 0.62 for non-Hispanic white women. The net effect of having a MA degree is 164% for Korean, 120% for Southeast Asian, 104 % for Asian/Pacific Islander, 97% for Filipino, 69% for Chinese, 48% for Japanese, while it is 86% for non-Hispanic white women. Thus, except for Chinese and Japanese women, most native-born Asian women earn more than native-born non-Hispanic white women at the MA level of education.

Turning to college graduates, returns to a BA degree or having some college education are larger for most native-born Asian American than non-Hispanic white women. However, having a BA degree is not very likely to influence wages for Asian Indian and Southeast Asian women, while having some college education does not

have an impact on wages for Asian Indian, Japanese, Korean and Southeast Asian women. Having a high school degree

In addition, the above results indicate various returns to education across all educational levels and across all groups—i.e., the higher the educational level, the larger the returns to education for all native-born women, other things being the same. For instance, the coefficient for a Japanese wife with a Ph.D. degree is 0.494, implying that a Japanese Ph.D. earns about 64% more than a high school dropout. The coefficient of a Japanese MA is 0.394, implying a net effect of 48% relative to a high school dropout. The coefficient of a Japanese BA is 0.232, implying a net effect of 26% wage advantages than those who do not finish their high school education. Nevertheless, having some college education or a high school degree is not very influential for their wages. In comparison to other native-born Asian groups, Korean women stand out as the group that enjoys the highest wage advantages at all educational levels, while the returns to education for them seem to be disadvantaged at the MA, BA and some college levels relative to other Asian American women. Overall, most native-born Asian American wives are advantaged at the higher educational levels. However, the effect of education on wages varies across groups and educational levels.

Labor Market Characteristics: Occupations

Results of occupations in Table 4 indicate that returns to occupations are greater for native-born non-Hispanic white women at all occupational levels than for

native-born Asian American women. However, it is worth noting that most coefficients of occupational levels are either not statistically significant or having a negative sign across all Asian groups. The coefficient of being employed in the professional/managerial/technical occupations is 0.793 for non-Hispanic white women, while it does not have an effect for all Asian American women. The net effect of having a professional job for non-Hispanic white women is 121%, implying that a professional earn about 121% more than a wife who does not have a job. In short, the findings suggest that most native-born married Asian women appear to earn less than native-born non-Hispanic white wives across all occupations. These results seem to support the structural discrimination hypothesis that minority women encounter racial discrimination in all types of occupations in the labor market.

Regional Differences

Results regarding regional differences in Table 4 illustrate several things. First, the coefficient of regions is statistically significant at the 0.0001 level for native-born non-Hispanic white women but regions do not have much impact on wages for most native-born Asian American women. Second, living in the Pacific area is more beneficial than living in the mount area for most native-born Asian women except for Asian Indian, Korean, Southeast Asian and Asian/Pacific women. The coefficient of living in the Pacific area is 0.338 for Chinese, 0.22 for Japanese, 0.219 for Asian/Pacific Islander, 0.159 for Filipino, while it is 0.2 for non-Hispanic white women. The net effect is 40% for Chinese, 25% for Japanese, 24% for

Asian/Pacific Islander and 22% for non-Hispanic white women. Third, relative to those women living the mountain area, Chinese, Japanese and Asian/Pacific women are advantaged living in the Northeast area, relative to non-Hispanic white women. However, non-Hispanic white women are more advantaged living in the South.

Family Characteristics

Turning to family characteristics, results in Table 4 show that family's economic condition does not have much influence on wife's wages for all native-born Asian American and non-Hispanic white women. Similarly, the slope coefficients of family size and husband's characteristics are not very likely to affect wife's income attainment except for Asian Indian women. The elasticity of husband's wages is –0.343 for native-born Asian Indian women, suggesting that husband's wages have a negative effect on native-born Asian Indian wife's earnings.

However, as expected, the presence of young children seems to be more influential on Asian American women's wages than other family factors. However, the effect of having young children varies across groups. For instance, having at least two young children is negatively linked to women's wages; however, unexpectedly, it has a positive effect on wages for non-Hispanic white and Chinese women. Having two or more older children has a negative effect on Japanese, Asian/Pacific Islander and non-Hispanic white women.

In conclusion, the OLS estimates of the log-wages regression for native-born Asian American wives reveal several conclusions. First, regarding educational

attainment, this analysis finds little evidence to support the conventional wisdom that Asian women must be more educated to earn a consistent level of wages with non-Hispanic white women, after controlling for other individual and structural characteristics. Second, living in the Northeast and the Pacific areas are advantaged for native-born Asian American wives than for non-born non-Hispanic white wives. Third, family's economic condition, family size and husband's characteristics are not very influential on their wife's wages. However, the presence of young children is an important determinant in affecting wages of native-born Asian American women.

Chapter Seven

Pearson Correlation and Hausman's Specification Test for Exogeneity

In the last two chapters, I discuss how individual and labor market characteristics lead to wage differences between immigrant Asian American and immigrant non-Hispanic white women, assuming that the relationship between the dependent variable (i.e., log-wages) and the explanatory variables is unidirectional. In other words, the explanatory variables are the causes, whereas the dependent variable is the effect. As mentioned before, controlling for hours worked (a continuous variable) or including a dummy variable indicating working part time (versus full time) in the conventional OLS model has not cleared up the debate over whether the hourly wage rate affects the overall labor market outcomes. Controlling for either hours worked or weeks worked in the OLS regression model does not help either because most analyses of income attainment typically ignore the influence of hourly wages. In order to examine whether an endogeneity problem exists in the OLS regression models, I conduct several hypothesis tests using both Pearson correlation and Hausman's Specification Test of exogeneity for all groups. Chapter Seven discusses the results of these hypothesis tests.

7.1 Pearson Correlation

The rationale for using the Pearson Correlation to test an endogeneity problem present in the model is that if there is an endogeneity problem in the model, all explanatory variables are stochastic (i.e., not fixed) in repeated sampling because they

are correlated with the error terms of two equations. In this case, the error terms of the log-hours worked equation would thus be correlated with the error terms of the log-wages equation. A simple test of the correlation between the error terms of the log-hours and those of the hourly wages equation will provide some useful information regarding the presence of any endogeneity problem in the model.

Table 5 and Table 5A show the results of the correlation coefficients, *r*, between the error terms of the log-hours equation and those of log-wages equation for immigrant and native-born wives, respectively. In these tables, v_{1i} and v_{2i} in the original regression OLS regression of the hours worked and hourly wages, respectively (without including the predicted estimates of $\ln Y_{1i}$ and $\ln Y_{2i}$). All correlation coefficients in both tables are statistically significant at the 0.0001 level, indicating that the disturbance in the hours worked equation is correlated with the disturbance in the hourly wages equation. For instance, in Table 5, the correlation coefficient is –0.148 for non-Hispanic white, -0.200 for Chinese, 0.157 for Filipino, -0.180 for Japanese, -0.150 for Asian Indian, -0.303 for Korean, -0.213 for Southeast Asian and –0.176 for Asian and Pacific women. These findings confirm most theoretical discussions on the reciprocal causation of the hours worked and hourly wages.

7.2 Further Evidence on the Endogeneity Problem

Although correlation coefficients provide useful information on the extent of how endogenous variables and explanatory variables are correlated, they do not

provide information regarding how the error terms actually cause the simultaneity problem. Further hypothesis testing for the endogeneity problem is thus needed.

As an additional check on the findings mentioned above, I use "Hausman's Specification Test" to diagnose the exogeneity problem. The rationale for conducting such a test is: under the null hypothesis if there is no endogeneity problem, then hours worked and hourly wages should be mutually independent. In other words, the error terms should not be statistically significant at any conventional levels, implying that the hours worked should be uncorrelated with the error terms in the hourly wages equation, and hourly wages should be uncorrelated with the error terms in the hours worked equation. Therefore, the correlation between error terms of hours worked and error terms of wages equation should be zero, asymptotically. By contrast, if hours worked and hourly wages are truly endogenous, then the Ordinary Least Square regression method is neither statistically appropriate nor is it theoretical plausible.

Table 5.1 and Table 5.1A show the OLS regression estimates of the endogenous variables and their residuals. Two tests are conducted for the log-hours equation and the log-wages equation, respectively. In Test 1, I regress the log of hourly wages on the predicted log-hours and the predicted error terms (i.e., v_{1i}[28]), while in Test 2 I regress log-hours on the predicted wages and the error terms (i.e., v_{2i}). I further perform a *t*-test on the coefficient of v_{1i} and v_{2i} to see if they are statistically significant.

[28] v_1 and v_2 are estimated using two separate reduced-form equations –i.e., regressing log hourly wages and log hours worked on all X's respectively.

Table 5.1 shows that the results of *t*-tests for v_{1i} and v_{2i} are statistically significant at the 0.0001 level, indicating that there is clearly an endogeneity problem existing in each OLS regression model. Table 5.1A also shows that most results from the *t*-tests for v_{1i} and v_{2i} are statistically significant at the 0.0001 level for most women except for Asian Indian and Korean wives. The results indicate that there is clearly an endogeneity problem existing in each OLS regression model for most groups but not for native-born Asian Indian and Korean wives. However, I do not want to jump into the conclusion that the endogeneity problem does not exit for the OLS equations of native-born Asian Indian and Korean wives because the sample size for these two groups is very small, resulting in larger standard errors in the equations.

In brief, the results of Hausman's specification test further confirm the hypothesis that there is a reciprocal causal relationship between hourly wages and hours worked for most groups. Therefore, conventional OLS method is not appropriate in this study because the OLS estimates are inconsistent and biased due to the endogeneity problem.

7.3 The Instrumental Variables: The Predicted Log-Hours Worked and Hourly Wage Rate

After performing the correlation and Hausman's specification tests to examine the existence of the endogeneity problem, I first conduct two reduced-form equations respectively by regressing the endogenous variable, log-hours, on all explanatory

variables in the entire system to obtain the predicted log-hours, as well as by regressing another endogenous variable, the log-wages, on all explanatory variables in the system.

Second, a comparison between the standard deviations of the log-hours and those of the predicted log-hours is very important because it offers information regarding whether the predicted variables are better estimates than metric variables. Statistically speaking, if the standard deviations of predicted variables are smaller than those of the metric log-hours and log-wages, and if the predictors and the metric variables are highly correlated, then the predicted log-hours and log-wages are indeed better measures to study income inequality.

Table 5.2 and Table 5.2A show the results of the standard deviations of predicted log-hours and predicted log-wages. For example, in Table 5.2, the standard deviation of log-hours is 0.718 for non-Hispanic white, 0.663 for Chinese, 0.592 for Filipino, 0.788 for Japanese, 0.672 for Asian Indian, 0.664 for Southeast Asian and 0.705 Asian Pacific women. On the contrary, the standard deviation of the predicted log-hours is 0.134 for non-Hispanic white, 0.168 for Chinese, 0.114 for Filipino, 0.277 for Japanese, 0.162 for Asian Indian, 0.155 for Korean, 0.133 for Southeast Asian and 0.239 for Asian and Pacific women.

Moreover, in Table 5.2, the standard deviation of observed log-wages is 0.728 for non-Hispanic white, 0.774 for Chinese, 0.706 for Filipino, 0.707 for Japanese, 0.792 for Asian Indian, 0.824 for Korean, 0.692 for Southeast Asian and 0.606 for

Asian/Pacific women. By contrast, the standard deviations are 0.306 for non-Hispanic white, 0.416 for Chinese, 0.315 for Filipino, 0.295 for Japanese, 0.421 Asian Indian, 0.295 for Korean, 0.288 for Southeast Asian and 0.302 for Asian and Pacific women.

The other important characteristic that a "good" instrument or predictor should be highly correlated with the metric variables is also confirmed by the findings reported in Table 5.3 and Table 5.3A[29]. These tables show the results of the correlation coefficients between the predictors and the metric log-hours and log-wages for all groups, by nativity. All correlation coefficients are statistically significant at the 0.0001 level, indicating that the predicted log-hours and the predicted log-wages are "good" substitutes for the metric log-hours and log-wages. In other words, these results imply that the standard deviations of predicted log-hours and predicted log-wages are notably smaller than those of log-hours and log-wages across all groups, suggesting that predictors are better indicators than the metric log-hours and log-wages since the error terms have been corrected. The resulting estimates are now consistent but might still be biased; however, the bias decreases as the sample size increases (Johnston 1972: 380-384).

[29] In Table 5.3A, I list the results of the correlation coefficients between the metric and predicted variables for only one group (i.e., native-born non-Hispanic white wives) because all correlation coefficients are statistically significant at the 0.0001 level across all groups. I thus skip the redundancy of discussing the similar results. However, results will be provided upon request.

Chapter Eight

2SLS Simultaneous Equations Models of the Hours Worked and Hourly Wages of Married Asian American and Non-Hispanic White Women

Tables 6 and 7 show the 2SLS estimates of the predicted log-hours regression and predicted log-wages regression for foreign-born Asian American and non-Hispanic white women. Tables 8-9 illustrate the 2SLS results for native-born Asian American and non-Hispanic white wives. Again, the findings of 2SLS do not support the conventional wisdom of the effect of systematic discrimination on Asian ethnic groups in the U.S. labor market.

8.1 The 2SLS Simultaneous Equations Models: Immigrant Asian American and Non-Hispanic White Wives

The 1st Equation: The Log of Hours Worked

The Predicted Log of Hourly Wages

The hypothesis that a higher hourly wage rate encourages workers to work harder or more hours of work is supported by the positive elasticity[30] of the predicted log-wages in Table 6 across all groups except for Asian Pacific women. The predicted log-wage rate is statistically significant at the level of 0.0001 for all women. The elasticity of the predicted log-wage is 0.16 for Filipino, 0.154 for Asian Indian, 0.117 for Southeast Asian, 0.039 for Japanese, 0.027 for Chinese, -0.148 for Asian Pacific Islanders, while it is 0.089 for non-Hispanic white women.

[30] The slope coefficients of log-wages in the study of the log-hours worked is the elasticity of the hourly wage rate with regard to totally hours worked in 1989.

The 2SLS results of the hourly wages reveal several implications. First, controlling for family factors, length of immigration and English proficiency, Filipino, Asian Indian and Southeast Asian women tend to decide to work more hours based on an increase in the hourly wage rate offered, relative to non-Hispanic white women. That is, a 1% increase in hourly wage rate encourages Filipino, Asian Indian and Southeast Asian women to spend more time working in the labor market by 17.4%, 16.6% and 12.4% respectively, relative to non-Hispanic white women.

Second, Japanese, Chinese, Korean and Asian Pacific women are less likely to base their decision of employment on the hourly wage rate offered, compared with non-Hispanic white women. In other words, a 1% wage raise only encourages Japanese, Chinese and Korean women to devote more time at work by 3.9%, 2.7% and 2.1% respectively. Third, it is worth noting that the elasticity of log-wages is negative for Asian and Pacific women, implying that a 1% increase in wages decreases the amount of hours worked, other things being equal.

These findings regarding hourly wages of immigrant women suggest several things. First, there are notable disparities in the decision of the amount of employment across all immigrant groups. Filipino, Asian Indian and Southeast Asian women tend to have a higher hourly wage rate that leads to a decision of allocating more time on their own career than non-Hispanic white and other Asian women. By contrast, Japanese, Chinese and Korean women are not as motivated to work longer by the hourly wage rate offered as immigrant non-Hispanic white women and other

Asian women. In other words, Japanese, Chinese and Korean women are more likely to base their decision of employment on other family factors such as the presence of young children, husband's characteristics etc. In short, East Asian women seem to emphasize their family's needs and values than Asian Indian women due to the impact of Confucianism. Moreover, since immigrant Asian Indian and Southeast Asian women are more devoted to their career than other Asian women, this might be the reason why they often stand out as the groups with higher wages than other immigrant Asian women. Finally, Asian and Pacific women tend to decide to work less when their hourly wage rate increases. That is, a 1% increase in hourly wages reduces their hours worked by 13.8%. Overall, the findings of family factors are consistent with results in previous studies.

Assimilation: Length of Immigration and English Proficiency

The effect of length of immigration and English speaking ability on the amount of employment is very consistent for all immigrant women. The coefficients of those who immigrated for less than five years and do not speak English well are negative and statistically significant at the 0.001 level across all groups. However, there are some noticeable disparities in recent immigration and English non-fluency among immigrant women. That is, the disadvantage in labor supply is greater for Asian women than for non-Hispanic white women. The coefficient of recent immigration is –0.089 for non-Hispanic white, -0.23 for Chinese, -0.229 for Asian Indian, -0.132 for Filipino, -0.139 for Japanese, -0.136 for Korean, -0.193 for

Southeast Asian and –0.337 for Asian Pacific women. The results indicate that recently immigrated Asian Pacific women (i.e., a net effect of –29%) are least likely to work in labor market. The effect of being recent immigrants on the amount of employment in the labor market is similarly for Chinese (i.e., a net effect of –21%), Asian Indian (i.e., a net effect of –20%) and Southeast Asian women (i.e., a net effect of –19%). Recently immigrated Japanese, Korean and Filipino are less disadvantaged than other Asian groups. The net effect of being recent immigrants is 13% for both Japanese and Korean and 12% for Filipino women. In short, the findings support both the human capital/assimilation and racial discrimination theories that recent immigrants with English non-fluency are less likely to participate in labor market activities than immigrant non-Hispanic white women.

By contrast, the assimilation hypothesis proposes that the amount of labor market participation tends to increase once minorities improve their language speaking ability and learn to adapt to the culture in the host society. 2SLS results in this study partially support this proposition. Immigration for more than ten years has a positive effect on employment for non-Hispanic white, Japanese and Korean women, while it is negatively linked to employment for other Asian women. In comparison to non-Hispanic white women, most Asian women are less likely to work in the labor market even after they stay for more than ten years. Regarding English fluency, results in Table 6 indicate that the effect of English proficiency on the decision of hours worked is positive for most immigrant women except for Chinese, Asian

Indian, Korean and Southeast Asian. In comparison to English non-fluency, English fluency has more positive effects on women's decision on the amount of the time they work in labor market.

Overall, immigrant non-Hispanic white women are more likely to participate in market activities or spend more time working in the labor market than other immigrant Asian women. In short, immigration for more than ten years and English fluency might encourage immigrant Asian women to participate more in labor market but the effects vary across Asian ethnic groups.

Family Characteristics

For most immigrant women, it is widely held that family factors play a central role in determining women's career or their life chances. The 2SLS results indicate that differences in family factors are the key factors contributing to the disparities in women's decision on hours they are willing to work.

Regarding the socioeconomic condition of a family, results in Table 6 partially support the hypothesis that socioeconomic condition negatively affects women's decision of how much time they can work in the labor market, except for Filipino and Southeast women. The coefficient of socioeconomic condition is statistically significant across all groups as expected. In comparison to immigrant non-Hispanic white women, immigrant Chinese, Japanese, Korean and Asian Indian women are more likely to work more hours due to family's economic pressure. This

is especially the case for Filipino and Southeast Asian women because socioeconomic condition appear to increase hours worked by a relatively larger margin than other immigrant wives. An economically better-off Filipino and Southeast Asian family apparently motivates the wives to pursue their career—a pattern of socioeconomic adjustment that is different from East Asian women's, possibly derived from discrepancies in language, religions, culture and so forth. Interestingly, this result also mirrors the effect of wages on employment among Filipino and Southeast Asian women, who are more likely to base their employment decision mainly on the hourly wage rate than other women. In short, the above findings suggest that immigrant Asian women overall tend to be more responsive to their domestic economic demands than immigrant non-Hispanic white women, and that while socioeconomic condition serves as an obstacle to some immigrant women, it serves as an advantage to others.

As expected, the presence of young children and adult members are very influential in affecting the amount of work for all immigrant Asian women. Unlike socioeconomic condition and hourly wages, the effect of the presence of young kids is negative for all immigrant women. For instance, the negative coefficients of having kids under age five illustrate the expected pattern of immigrant women's employment, suggesting that having young children hinders women from allocating their time pursuing their own career. However, this factor does not affect women's employment decision consistently. The coefficient of having kids under age five is –0.233 for Japanese, -0.153 for Korean and Asian Pacific Islanders, -0.07 for Filipino,

-0.05 for Chinese, and -0.032 for Asian Indian, whereas it is –0.121 for non-Hispanic white women.

The 2SLS results imply several things. First, Japanese women stands out as the group that is most responsive to their childbearing tasks. The result implies that having kids under age five hinders Japanese women's employment by 21% more than those Japanese women not having any young kids. Second, having young children has similarly negative effects on women's employment for Korean and Southeast Asian women, relative to those who do not have children. The net effect is 14% for both groups, implying that the employment of Korean and Southeast Asian women is about 14% more likely to be impeded by having young children than those who have no young kids. Third, the results also indicate that Japanese, Korean and Southeast Asian women are more disadvantaged regarding having young kids than non-Hispanic white women (i.e., the net effect is 11% for non-Hispanic white women). The findings, again, confirm that the career of East Asian women, like Japanese and Korean women, is more likely to be affected by domestic needs, while it is less likely to be affected by their hourly wage rate or by an economically better-off family.

In addition, having less than two or having more than two children over age five operates similarly across most immigrant groups, except for Filipino and Japanese women. Although these two variables are statistically significant at the 0.0001 level and negatively relate to variations in women's employment decision, they operate slightly differently for Filipino and Japanese women. For example, for

Filipino women, having more than two kids age over five is linked positively to their labor market employment; nevertheless, for Japanese women, having less than two children age over five positively affects employment. In terms of having less than two kids over age five, Asian Indian and Korean are more disadvantaged in allocating their time in labor market than non-Hispanic white women and other Asian women. The coefficient of having less than two kids over age five is –0.094 (i.e., a net effect of -9%) for Asian Indian, -0.04 (i.e., a net effect of –4%) for Korean but it is –0.037 for non-Hispanic white women (the net effect is -3.6%), implying that Asian Indian and Korean women are more disadvantaged regarding pursuing their own career than non-Hispanic white women.

Further, as expected, having more than two children age over five has a negative effect on the amount of employment for immigrant Southeast Asian, Asian Pacific Islander and non-Hispanic white women, while it serves as an advantage for immigrant Filipino women. Results in Table 6 indicate that the coefficient of having more than two kids age over five is –0.302 for Asian Pacific women, -0.196 for Asian Indian, -0.076 for Southeast Asian, -0.067 for Chinese and –0.071 for non-Hispanic white women, whereas it does not have much effect on the career of Japanese and Korean women. The findings suggest that, the presence of more than two kids age over five demands more home time for Asian Pacific, Asian Indian, Southeast Asian and non-Hispanic women by 26%, 6.5%, 7.6%, 6.7% and 6.9% respectively, relative to those who with fewer or no kids. Generally speaking, the findings provide two

general points: 1) The presence of children, either under age five or over age five, often serves as an obstacle to most immigrant women's amount of labor market participation. However, it is worth noting that the presence of young children is clearly more influential for all immigrant women than having older children in the family; and 2) most immigrant Asian women are not necessarily more disadvantaged than immigrant non-Hispanic white women regarding the amount of time they need to sacrifice to work in labor market.

Finally, while family size accounts for substantial discrepancies in some immigrant Asian women's employment decision, it is not influential for non-Hispanic white, Asian Indian, Filipino and Japanese women's employment. In addition, family size does not operate in a consistent way for all groups either. While a larger family seems to demand Korean and Southeast Asian women to work in labor market, it demands Chinese and Asian Pacific women's to spend more time at home taking care of the family.

Like other family factors, immigrant husband's characteristics including husband's wages and human capital resources contribute to heterogeneity in the wife's decision on how much of her time can be reallocated in working in labor market. Husband's hourly wage rate has a very substantial and positive effect on wife's employment among Asian Indian women (i.e., the elasticity is 0.032), Korean women (i.e., the elasticity is 0.021) and non-Hispanic white women (i.e., the elasticity is 0.012). Conversely, it has a notably negative effect on Filipino women's

employment (i.e., the elasticity is -0.007). In other words, a 1% increase in husband's wages increases their wife's amount of employment by 3.3% hours for Asian Indian women, 2.1% hours for Korean women and 1.2% hours for non-Hispanic white women, while it reduces hours worked by 7% for Filipino women. These findings reveal several implications. First, husband's hourly wage rate has a substantial effect on wife's employment for Asian Indian, Filipino, Southeast Asian and non-Hispanic white women. Nevertheless, husband's hourly wage rate is not sensitive to the amount of employment for Chinese, Japanese, Southeast Asian and Pacific women. Second, the career of Asian Indian, Korean and non-Hispanic white women is more likely to be motivated by their husband's wages, while husband's wages reduces the amount of employment for Filipino women. That is, among Filipinos, husband's wages discourage wife's amount of employment by 0.7%. By contrast, for immigrant Asian Indian and Koreans, husband's wages tend to encourage their wife to participate more in the labor market by 3.3% and 2.1% respectively, compared with immigrant non-Hispanic whites.

Husband's educational levels play a very influential role in wife's amount of employment. Table 6 reveals important information concerning how husband's education leads to notable heterogeneity in whether immigrant Asian women need to work harder and longer hours to earn consistent wages with immigrant non-Hispanic white women. Most husbands' education is statistically significant at the 0.001 level and with a negative sign across all educational levels, although there are some

variations among groups. For example, except for Asian Pacific husbands, the coefficient of having a Ph.D. degree is negative for Filipino, Japanese, Korean, Southeast Asian and non-Hispanic white husbands.

To illustrate, a Ph.D. degree of Filipino, Korean, Southeast Asian and non-Hispanic white husbands decreases their wife's hours worked, while an Asian Pacific husband with a Ph.D. increases his wife's working hours. By comparison, Ph.D. Filipino husbands stand out as the group with the largest negative effect on the wife's labor employment, whereas the influence of a Ph.D. degree is equivalent for non-Hispanic white, Southeast Asian husbands. The findings imply that, other things being the same, a Filipino Ph.D. husband decreases his wife's working hours by 4.8%, while a non-Hispanic white and a Southeast Asian husband with a Ph.D. degree reduce wife's hours worked by 4.6%. By contrast, an Asian and Pacific Ph.D. husband increases wife's hours worked by 31%.

For husbands with a MA degree, Korean husbands have the largest influence on their wife's amount of employment, followed by Southeast Asian husbands. Except for Asian Pacific Islanders, Asian husbands with a MA degree are relatively more likely to affect their wife's employment decision than non-Hispanic white husbands. Similarly, for husbands with BA degree, non-Hispanic white husbands are less likely to discourage their wives from working in the labor market than most Asian husbands. Among Asians, Korean husbands and Chinese husbands with BA degree are about 4.8% and 1.1% respectively more likely to have an influence on

their wife's labor supply than other Asians. Asian wives (e.g., Asian Indian, Filipino, Chinese and Korean) are more likely to work in labor market if the husband's educational attainment is less than a college degree. Likewise, for Asian husbands with a high school degree increases the wife's amount of employment in labor market. In short, the findings indicate a few patterns of immigrant Asian Americans' socioeconomic adjustment. First, the higher the husband's educational level, the lower the wife's amount of employment in the labor market across all groups. Second, among Asian groups with education equivalent to having a college degree or less, Chinese, Asian Indian husband's education has a positive effect on their wife's hours of work in labor market. Third, Korean husbands at all educational levels (except Ph.D. level) stand out as the group that is more likely to demand their wife's labor market participation.

In sum, the findings apparently foster the hypothesis that women's hourly wages, family factors and level of assimilation play an essential role in determining immigrant women's amount of employment across all groups. By comparison, family context such as socioeconomic condition, the presence of young children and husband's characteristics appear to have a larger effect on the labor supply for Asian women than for non-Hispanic white women. Among Asian groups, Asian Indian and Filipino women are more responsive to economic factors, such as their own hourly wage rate and family's economic prosperity, than to family constraints such as number of children or husband's education and wages. On the contrary, Chinese,

Japanese and Korean are more responsive to family constraints, especially the presence of young children and husband's characteristics, and less responsive to their own economic well-being, English speaking ability and length of immigration. Finally, non-Hispanic white women mainly make their decision of the amount of employment based on such factors as length of immigration and English speaking ability. Overall, the above analysis shows that due to different socioeconomic and cultural backgrounds, the amount of employment varies across groups.

The 2nd Equation: The Log of Hourly Wages

In this section, I will discuss whether the amount of employment, human capital endowments and regions contribute to wage differences between foreign-born Asian American women and foreign-born non-Hispanic white women. Table 7 shows the 2SLS results of the regression of the hourly wages. Again, the overall findings challenge the conventional wisdom that immigrant Asian women are underpaid with comparable hours worked, education, region and so forth, relative to immigrant non-Hispanic white women.

The Predicted Log-Hours Worked

There is a noticeably positive effect of hours worked on hourly wages among immigrant women. The t ratios are statistically significant at the 0.0001 level across all immigrant groups, except for Asian Pacific women. The elasticity of the predicted log-hours worked is –1.002 for Chinese, -0.755 for Japanese, -0.725 for Asian Indian,

-0.345 for Filipino, -0.314 for Korean, -0.236 for Southeast Asian, -0.094 for non-Hispanic white, while it is 0.204 for Asian Pacific women. These results, for example, indicate that a 1% decrease in the amount of employment leads to 63% increase in the hourly wage rate for immigrant Chinese women, and 9.4% increase in wages for immigrant non-Hispanic white women, other things being equal. In other words, the fewer the hours actually spent in the labor market implies that immigrant women who receive a higher hourly wage rate might be in a higher social class or have a better-paid job (e.g., professional/managerial/technical positions). (Table 1 shows the ratio of occupations across groups). This finding is further supported by the results regarding family's socioeconomic condition discussed earlier (see Table 6). That is, immigrant women who live in an economically better-off family are less likely to allocate their time working in labor market across all groups, except for Asian Pacific women. By contrast, a 1% increase in hours worked tends to increase the hourly wages by 23% for Asian Pacific women, implying that immigrant Asian Pacific women are more likely to work longer hours in labor market to assist the household economy. Therefore, except for Asian Pacific women, most Asian women are not disadvantaged in terms of hours they worked to reach parity income with non-Hispanic white women. These findings do not support the conventional wisdom that immigrant Asian Americans need to work harder and longer to earn a consistent level of money, relative to immigrant non-Hispanic white women.

Human Capital: Educational Attainment

The 2SLS results for immigrant Asian women are shown in Table 7. As expected, the wage returns to educational levels operate in the correct direction and the t ratios are statistically significant at the 0.0001 level across all groups, except for Asian Pacific women. There is no evidence that the returns to education across all levels of immigrant Asian women are systematically lower than those of immigrant non-Hispanic white women. For instance, at the Ph.D. level, the returns to Asian Indian Ph.D. women are 1.142, implying that among immigrant Asian Indian women, having a Ph.D. degree earns about 213% more money than a high school drop out. Korean women with a Ph.D. degree stand out as the second group that has higher educational returns than non-Hispanic white and other Asian women. The coefficient of having a Ph.D. for Korean women is 0.97, implying a net effect of 164% (relative to a high school dropout). Moreover, the returns to a Ph.D. degree is 0.875 for Japanese women, 0.767 for Chinese women and 0.728 for Southeast Asian, exceeding the returns to a non-Hispanic white Ph.D. (i.e., the coefficient is 0.664). These results imply that Japanese, Chinese and Southeast Asian woman with Ph.D. degrees earns just about 140% more, 115% more, 107% more, respectively, than those who do not finish high school education. A Ph.D. degree for non-Hispanic white women earns about 66% more than a high school dropout. In comparison to returns to a Ph.D. of immigrant non-Hispanic white women, the returns to a Ph.D. for almost all Asian

immigrant women are much greater than those of immigrant non-Hispanic white women at the same educational level.

Turning to the MA level of education, again, this study finds little evidence to support the racial discrimination hypothesis. Japanese women with a MA degree stand out as the group with the highest return rate to education, followed by Filipino, Southeast Asian and Chinese women with a MA degree. The coefficient of a MA degree is 0.657 for Japanese women, 0.543 for Filipino women, 0.572 for Southeast Asian and 0.48 for Chinese women, whereas it is 0.456 for non-Hispanic white women with a MA degree. The results imply a net effect of 93% for Japanese women, 72% for Filipino women, 57% for Southeast Asian women, 62% for Chinese women, while the net effect is 58% for non-Hispanic white women, relative to the high school dropouts across groups. The returns to a MA degree for Korean women are 56%, close to those of non-Hispanic white women. The findings suggest that most immigrant Asian women at the higher educational levels are not more disadvantaged, compared to immigrant non-Hispanic white women at the equivalent educational levels. In other words, immigrant Asian women apparently need not to be more educated to receive a higher return rate to their education.

In addition, regarding the returns to a BA degree or to those who have completed some college education, 2SLS results reveal sharp variations across immigrant groups. Japanese women having a BA degree or having some college education, again, stand out as the premier groups with the highest returns to their

education, followed by Southeast Asian and Filipino. However, Chinese, Asian Indian, Korean and Asian Pacific women having a BA degree or having some college earn less money than non-Hispanic white women. The returns to a BA degree are 0.481 for Japanese women, 0.436 for Southeast Asian women, 0.404 for Filipino women, 0.312 for Korean women, 0.273 for Chinese women, 0.186 for Asian Indian women, 0.162 for Asian Pacific women, while they are 0.323 for non-Hispanic white women. The net effect of a BA degree is 62% for Japanese women, 55% for Southeast Asian women, 50% for Filipino women, 38% for non-Hispanic white women, 37% for Korean women, 27% for Chinese women, 20% for Asian Indian women and 18% for Asian Pacific women.

At the some college education level, except for immigrant Chinese women, immigrant Asian women apparently enjoy making more money than immigrant non-Hispanic white women across all groups. Japanese women represent the group with the highest returns to having some college education, followed by Asian Indian, Korean and so forth. The returns of having some college education are quite similar for most Asian immigrant women. For example, the coefficient is 0.281 for Japanese, 0.247 for Asian Indian, 0.233 for Korean and 0.175 for non-Hispanic white women, implying that Japanese women earn just about 32% more than those who did not finish high school education. The result also shows that most immigrant Asian women receive a higher return to having some college degree than immigrant non-Hispanic white women.

Turning to the level of having a high school degree, the results shown in Table 7 again support the hypothesis that the higher the educational level, the higher the returns to education, whereas the lower the educational level, the less the money earned. In comparison with the higher levels of education, the returns to having a high school degree are much smaller than for a Ph.D. degree, a MA degree or a BA degree. The coefficient of a high school degree is actually either very small or close to zero for Chinese (i.e., 0.031), Korean (i.e., 0.061), Southeast Asian (i.e., 0.061) and non-Hispanic white women (0.049), while it is not statistically significant at any conventional level for Asian Pacific women. Compared with non-Hispanic white women, Asian Indian, Japanese, Filipino, Korean and Southeast Asian women are at an advantage regarding having a high school degree.

In brief, the findings regarding returns to educational levels support the human capital hypothesis that, ceteris paribus, educational attainment plays an essentially positive role in affecting income attainment among foreign-born Asian American women. However, substantial heterogeneity exits in terms of returns to education across Asian ethnic groups and across educational levels. In other words, the effect of education varies across different Asian ethnic groups and across educational levels—i.e., the higher the educational levels, the higher the hourly wage rate. For instance, foreign-born Asian Indian women are the most successful group in obtaining returns to a Ph.D. degree and to a high school degree, though they are less successful at the MA and BA levels. Japanese women apparently are the most

successful group in receiving returns at the levels of a MA degree, a BA degree and some college, though they are slightly disadvantaged at the Ph.D. and high school degree level. Chinese, Filipino and Southeast Asian women are more advantaged at the Ph.D. level than non-Hispanic white women, while being disadvantaged at the MA and BA degree levels. By contrast, Asian Pacific women are the most disadvantaged group at the higher levels of education and they only fare relatively well at the level of having some college education, relative to other immigrant women.

The age effect on hourly wages is statistically significant at the 0.001 level for all immigrant women. However, it does not operate in a consistent way across groups. As expected, age is positively related to hourly wages for most groups, supporting the hypothesis that the older the immigrant women, the less labor market interruption due to child-bearing responsibility, the more labor force experience and thus the higher the hourly wages, other things being equal. Nevertheless, it is negatively associated with hourly wages for Chinese, Southeast Asian and non-Hispanic white women. It is worth noting that the coefficient of age across all groups is either very small or close zero, suggesting that the age differences are fairly small, and thus age might not be a good indicator in interpreting and predicting the wage differences between Asian women and non-Hispanic white women.

Assimilation: Length of Immigration and English Proficiency

The effect of immigration for less than five years is similar for all groups. It has a negative effect on hourly wages for all women, though it is not statistically significant for Asian and Pacific women. The results in Table 7 indicate that among immigrant women who migrated to the U.S. for less than five years, all Asian women are more disadvantaged, compared to non-Hispanic white women. The coefficient of immigration for less than five years is –0.399 for Asian Indian women, -0.332 for Chinese women, -0.219 for Filipino women, -0.179 for Korean women, -0.096 for Japanese women, while it is –0.04 for non-Hispanic white women. These findings imply that being immigrated for less than five years reduces the hourly wages by 33% for Asian Indian women, 28% for Chinese women, 20% for Filipino and Southeast Asian women, 16% for Korean women, 9% for Japanese women, and 4% for non-Hispanic white women. Similarly, results in Table 7 show 1) that English non-fluency is linked negatively to hourly wages for most immigrant women, except for Filipino and Korean women, 2) that Asian Indian and Asian Pacific women who do not speak English well are more disadvantaged than non-Hispanic white women, and 3) that Chinese women are as disadvantaged as non-Hispanic white women.

By contrast, for those who immigrated for more than ten years, both length of immigration and English fluency have a positive effect on the hourly wages. The *t* ratios of immigration for more than ten years are statistically significant at the 0.0001 level. However, a longer immigration period does not have much effect on the wages

of Asian Pacific women. Interestingly, Japanese women, again, stand out as the group with the highest wages, followed by Korean women. The effect of immigration for more than ten years is similar for Chinese, Filipino and non-Hispanic white women. Southeast Asian women are the least advantaged group, relative to all other immigrant women.

These findings support the assimilation hypothesis that the longer the immigration length, the higher the hourly wages earned by immigrant women. Second, immigrant Asian women migrated for more than ten years fare at least as well as immigrant non-Hispanic white women. Likewise, the effect of English proficiency tends to increase the hourly wage rate for all immigrant women. Nevertheless, since the coefficient of English proficiency is only marginally significant at the conventional level of 0.05, the effect of English proficiency is not as substantial as human capital resources, such as educational attainment for immigrant Asian American women.

Labor Market Characteristics: Occupations

Occupational levels seem to contribute to wage differences between non-Hispanic white women and Asian American women. The effect of professional jobs is positive and the *t* ratios are statistically significant at the 0.001 level across all groups. The returns to professional jobs are similar for Chinese and non-Hispanic white women. However, the returns of professional jobs are less for other Asian groups, relative to non-Hispanic white women. Clerical jobs are also positively

associated with the hourly wages for most immigrant women, and the *t*-ratios are statistically significant at the 0.0001 level. However, clerical jobs have a negative effect on wages for Filipino women, while they do not have much effect on wages for Korean and Asian Pacific women. Compared to immigrant non-Hispanic white women, returns to clerical jobs are lower for Asian women. Except for immigrant non-Hispanic white women, the effect of sales jobs has a negative effect on wages for all Asian women.

Turning to operator jobs, Japanese women stand out as the group with the highest returns, followed by Chinese and Asian Indian women, while Southeast Asian women earn less than non-Hispanic white women for the same job. Finally, working as a laborer increases the hourly wages by 28% for Japanese women more than the return rate for non-Hispanic white women. Laborer jobs are not likely to affect Chinese women's wages, while they have a negative effect on wages of Filipino, Korean and Pacific women.

Overall, Asian American women seem to have more disadvantages than non-Hispanic white women for the same job. It is worth noting that the coefficients of occupational levels for Asian women are either very small or close to zero. Compared with the main effect of educational attainment on the hourly wages, occupations do not have substantial effect on the hourly wages among immigrant Asian American women. Therefore, one must not jump to the conclusion that Asian American women still suffer tremendous systematic racial discrimination in labor market.

This study does not suggest that there are no structural barriers operating against Asian American women in the labor market. The disadvantages of Asian American women in professional jobs do reveal some important information regarding the effect of a "glass ceiling" against minorities groups, especially women and ethnic minorities in the labor market. In other words, due to their relatively high educational attainment and professional skills, Asian American women are actually "well-represented" in professional jobs receiving either equivalent or greater wages than non-Hispanic white women. However, due to structural constraints, Asian Americans, especially women, are "severely underrepresented" in various high-ranking positions, such as executive and administrative positions in both private industry and governmental employment (Chan 1989; Tang 1993; Tom 1988 in Min 1995: 42). In brief, although Asian American women seem to suffer wage disadvantages in some occupations, the small effects of occupations on hourly wages are not sufficient evidence to conclude that Asian American women face systematic labor market discrimination.

Regional Differences

There are statistically significant wage discrepancies between immigrant Asian American women and immigrant non-Hispanic white women resulting from regional differences in residence. As expected, living in the Northeast and Pacific areas is positively related to hourly wages; the *t* ratios are statistically significant at the 0.0001 level. The coefficients of living in the Northeast area are larger for Filipino

(i.e., 0.322) and Japanese women (0.352) than for non-Hispanic white women (0.293), implying that living in the Northeast area increases hourly wages by 38% for Filipino, 42% for Japanese and 34% for non-Hispanic white women, relative to those who live in the mountain area. However, the coefficients of Northeast area are smaller for other Asian groups than for non-Hispanic white women.

Likewise, living in the Pacific area has a positive effect on hourly wages among immigrant women. The *t* ratios are statistically significant at the 0.0001 level across all groups. Living in the Pacific area is especially beneficial for Japanese and Korean women, compared to other immigrant groups. The coefficient of living in the Pacific area is 0.3 for Japanese, 0.27 for Korean, 0.184 for Filipino, 0.167 for Chinese, 0.157 for Asian Indian, 0.135 for Asian Pacific women, 0.083 for Southeast Asian and 0.25 for non-Hispanic white women. The wage advantage of living in the Pacific area is 35% for Japanese, 31% for Korean, 28% for non-Hispanic white, 18% for Chinese, 17% for Asian Indian, 14 % for Asian Pacific women and 9% for Southeast Asian women.

Living in the South and the Midwest areas is not as beneficial as living in the Northeast and Pacific areas for Asian American women. There are also more wage variations derived from living in the South and Midwest across Asian groups, relative to the living in the mountain area. The effect of living in the South on wages is negative for Chinese, Filipino and Southeast Asian women, while it is positive for Asian Indian, Japanese, Korean, Asian Pacific women and non-Hispanic white

women. The *t* ratios again are statistically significant at the 0.001 level across all groups. For Japanese, the coefficient is 0.1, implying a net effect of 11%. For Asian Pacific women, the coefficient is 0.3, implying a net effect of 35%. For Korean and Asian Indian women, the coefficient is 0.083 and 0.043 respectively, implying a net effect of 9% and 4.3% respectively.

Finally, living in the Midwest area has a positive effect hourly wages for most immigrant women except for Chinese and Southeast Asian women. However, living in the Midwest is not likely to affect the hourly wages for Asian Indian women. The coefficient of living in the Midwest is 0.198 for Filipino women, implying a net effect of 22%, while it is 0.146 for non-Hispanic white women (a net effect of 16%). The coefficient is 0.142 for Korean women and 0.046 for Japanese women, implying a net effect of 15% and 5% respectively.

The results indicate that the wage advantage from living in the Northeast and Pacific areas is larger than living in the South and Midwest areas for Asian American women, especially for Japanese women. Second, Japanese and Korean women living in the South are more advantaged than non-Hispanic white women and other Asian women. The wage advantage from living in the South is much smaller than living in the Northeast and Pacific areas for most immigrant women. Third, living in the Midwest is especially beneficial for Filipino and Asian Pacific women, but it only offers marginal advantage for non-Hispanic white, Korean, Japanese women. Fourth, these results reveal a common socioeconomic adaptation pattern of immigrant

women. That is, immigrant Asian women have more wage advantages living in areas where most Asian Americans locate, partially confirming the ethnic enclave hypothesis that ethnic enclaves might have a positive effect on the hourly wages for minority groups. To sum up, the 2SLS estimates of the wage regression suggest that the human capital resources (e.g., educational attainment) are pivotal assets that enhance the income achievement of both foreign-born Asian American women and non-Hispanic white women. The results indicate that English speaking ability, length of immigration, occupation type and regions, to a lesser extent, differentially affect the income attainment of immigrant Asian and non-Hispanic white women. These results generally suggest that immigrant Asian American women do not need to have more education or work longer hours in order to earn comparable wages with immigrant non-Hispanic white women, and that the effect of educational attainment, especially at the higher educational level, is larger than that of most controlled variables across all Asian groups.

8.2 2SLS Simultaneous Equations Models: Native-Born Asian American and Non-Hispanic White Wives and A Comparison of the OLS and 2SLS Results

Substantively, this study has indicated that educational levels, family factors, the hourly wage rate and hours worked have a pivotal impact on the income attainment of foreign-born and native-born Asian American and non-Hispanic white wives. As most previous studies suggest, education has a nonlinear effect on wage differences of women. The returns to a Ph.D. degree and MA degree are much higher

than those to a high school dropout or those who have a high school degree. Substantial variations in the returns to education are also shown across groups. Table 11 and 13 show the noticeable variations in the net effect of educational levels across groups. Among immigrant wives, Asian Indian wives stand out as the group with the highest returns to education at the Ph.D. level, followed by Korean, Japanese, Southeast Asian and Chinese wives.

For instance, the net effect of having a Ph.D. degree is 213% for Asian Indian, 164% for Korean and 140% for Japanese, implying that these three groups of women earn about 213%, 164% and 140% respectively more than a high school drop out. By contrast, non-Hispanic white wives with a Ph.D. degree earn only 94% more than a high school drop out. These findings show that the returns to most foreign-born Asian American wives are larger than those to foreign-born non-Hispanic white wives.

Among the native-born, Asian Indian wives with a Ph.D. degree again enjoy the highest wage advantage than other groups. Native-born Chinese, Japanese and Korean wives also earn more than native-born non-Hispanic white wives. Table 13 shows that native-born Asian Indian, Chinese, Japanese and Korean wives earn about 263%, 146%, 141% and 127% respectively more than a native-born high school dropout. The net effect of having a Ph.D. degree for native-born non-Hispanic white wives is 103%. Native-born Southeast Asian and Pacific wives have more wage disadvantages than other native-born wives.

According to these results, one learns that native-born Asian American wives have more wage advantages than the foreign-born. In addition, at the Ph.D. degree level, most foreign-born Asian American wives earn more than native-born non-Hispanic white wives. In other words, the returns to having a Ph.D. degree are greater for foreign-born Asian Indian, Japanese, Chinese, Korean, Southeast Asian wives than for native-born non-Hispanic white wives.

At other educational levels, such as having a MA degree, BA degree, some college education and a high school degree, most foreign-born and native-born Asian American wives (except for foreign-born and native-born Filipino and Pacific wives, and native-born Southeast Asian wives) enjoy more wage advantages than foreign-born and native-Hispanic white wives.

Regarding family factors, economic condition has very small effect on the hours worked, although most of its slope coefficients are statistically significant at either the conventional 0.05 level or the 0.0001 level. The number of having young children in the family has a negative effect for almost all foreign-born and native-born wives. The hourly wage rate has a positive effect on the hours worked for most groups except for native-born Asian Indian and Korean wives. These results imply that Asian American and non-Hispanic white wives take the hourly wage rate into account when they make their decision on the amount of time they can work in the labor market. Husband's characteristics generally have a negative effect on wife's decision to work, especially among immigrant Asian American and non-Hispanic

white wives. However, husband's influences vary noticeably among the native-born. For example, Chinese and Japanese husband's characteristics have a positive effect on their wife's decision to work, while non-Hispanic white husband's characteristics have a negative effect on their wife's labor market employment.

Husband's characteristics generally have a negative effect on wife's decision to work, especially among immigrant Asian American and non-Hispanic white wives. However, husband's influences vary noticeably among the native-born. For example, Chinese and Japanese husband's characteristics have a positive effect on their wife's decision to work, while non-Hispanic white husband's characteristics have a negative effect on their wife's labor market employment.

Finally, regarding the effects of various occupations on the hourly wage rate, the results in this study show that both foreign-born and native-born non-Hispanic white wives seem to enjoy more wage advantages than Asian American wives at almost all levels of occupations.

8.3 A Comparison of the Results of the OLS and 2SLS Regressions

A comparison of the estimates in the OLS regression models and those in the 2SLS regression models is important to understand whether there are differences between the conventional OLS regression models and the 2SLS simultaneous equation models. In this section, I will compare the differences in the adjusted R-squares, coefficients, *t*-values and so on between the OLS models and those in the 2SLS models.

Adjusted-R Square

Adjusted-R square in the OLS models of the regression of log-hourly wages in Table 3 is 0.2 for the model of non-Hispanic white women, 0.321 for Chinese women, 0.291 for Asian Indian women, 0.272 for Filipino women, 0.182 for Japanese women, 0.2 for Korean women, 0.205 for Southeast Asian women and 0.173 for Asian Pacific women. These results suggest that the explanatory power for most groups is only about 20-30%. The adjusted-R square is smaller in the OLS regression models of hourly wages for the native-born Asian American and non-Hispanic white wives (see Table 4). On the other hand, the adjusted R square in most 2SLS regression model of wages for both foreign-born and native-born wives is about 0.9, except for foreign-born Korean and Asian/Pacific wives and native-born Asian Indian wives. These results suggest that the explanatory power for most 2SLS regression models of wages is about 90% or more, and that the 2SLS method apparently is better than the OLS method (see Tables 3, 4, 7 and 9).

T-Tests

The *t*-values for the slope coefficients are much larger in most of the 2SLS models than in the OLS models. For example, the slope coefficients of family factors and occupations are highly and statistically significant in almost all 2SLS models at any conventional levels, while the slope coefficients of family factors (especially husband's characteristics, family's economic condition and family size) as well as occupations in the OLS models are not statistically significant for almost all groups.

The slope coefficients of educational levels (especially at the level of Ph.D. and MA) in the 2SLS regression models are slightly greater than those in the OLS regression models (see Tables 10, 11, 12, 13).

As an additional check on the results in this study, several *t*-tests are conducted to examine whether the differences in the net education effect and net employment effect across racial groups are statistically significant. Table 14 presents the results of differences in *t*-ratios in terms of employment, hourly wages and educational levels between native-born non-Hispanic white wives and each immigrant Asian group. The *t*-ratios in the first row of Table 14 indicate that the employment differences are statistically significant at conventional levels for all groups. The *t*-ratios of the hourly wage rate in the second row of Table 14 suggest that wage differences are statistically significant at conventional levels except for Pacific wives.

With regard to differences in the net education effect, the *t*-ratios in Table 14 show that the differences of having a high school diploma, some college and a Ph.D. degree are statistically significant at any conventional levels except for Pacific Islanders. The *t*-ratios on the middle panel show that the differences of having a BA degree are statistically significant except for Asian Indian wives. The bottom panel of Table 14 presents that the differences of having a MA degree between native-born non-Hispanic white wives and each Asian group are all statistically significant at any conventional levels.

Table 15 indicates the differences in employment, hourly wages and educational levels between native-born non-Hispanic white wives and each native-born Asian group. The *t*-ratios in top panel of Table 15 suggest that the variations in employment are statistically significant at conventional levels across all groups. Hourly wages are statistically significant except for Pacific Islanders. The *t*-ratios of having a high school diploma show that the differences of having a high school are statistically significant for Chinese, Filipino and Japanese wives, but they are not significant for Asian Indian, Korean, Southeast Asian and Pacific wives. The differences in having some college or a BA degree are statistically significant for most groups except for Asian Indian wives. The differences in having a MA degree are statistically significant at any conventional levels except for Asian Indian and Pacific wives. Finally, *t*-ratios in the bottom panel of Table 15 show that the differences in having a Ph.D. degree are statistically significant except for Korean wives. Generally speaking, the *t*-ratios in both Table 14 and Table 15 show that the results in this study are consistent with the hypothesis that most foreign-born and native-born Asian American wives do not necessarily need to have more education and work longer hours to earn consistent income with the native-born Non-Hispanic white women. The results also indicate that these differences vary across racial groups which also support the hypothesis that there are substantial variations in socioeconomic attainment across Asian groups.

Chapter Nine

Summary and Conclusion

This chapter provides a summary of the main issues, research goals, theories, hypotheses, statistical models and discusses the empirical findings of different causal models in this analysis. The theoretical, methodological and policy implications as well as the future relevant research interests are also addressed at the end of this analysis.

9.1 Summary

Main Issues

There are several primary issues in this analysis:

1. Whether Asian American wives need to have more education and work longer hours to achieve income parity with non-Hispanic white wives. For example, whether an immigrant Chinese wife with a Ph.D. degree earns less than an immigrant and a native-born non-Hispanic white Ph.D. wife, other things being the same.
2. Whether family factors, such as husband's wages and education, family size and socioeconomic conditions as well as the presence of young children have a substantial impact on Asian American women's amount of employment, other things being equal.
3. Whether hours worked and hourly wages reciprocally affect each other.

4. Whether the effect of explanatory variables on hours worked and hourly wages differ across racial and Asian ethnic groups.
5. Whether different causal mechanisms help clarify the conflicting results in the previous studies and generate robust results.

Primary Goals

The primary goals of this analysis include: 1) to examine the extent to which educational levels and racial discrimination via different causal models (e.g., OLS and 2SLS) lead to wage differences between Asian American and non-Hispanic white wives, controlling for family factors, English proficiency, immigration length and some demographic variables; 2) to investigate the extent to which family factors act as a resource or an obstacle to married women's decision to work; 3) to explore the structure of the reciprocal relationship between the causal mechanism of the hours worked and that of the hourly wages across groups; 4) to integrate and converge conflicting theoretical perspectives of socioeconomic attainment by constructing a non-recursive structural system, that may help us better understand earning inequality among minority groups, relative to the majority, in the U.S. labor market; 5) to recognize and understand how different causal models can help us further compare the robustness of empirical results more accurately; 6) to clarify the controversial findings in the previous studies using exclusively the standard OLS method; 6) to improve the robustness of the empirical results by using advanced statistical methods to construct and compare results obtained from different causal mechanisms.

Hypotheses

The hypothesized links between and among variables are evaluated grounded in the theories and empirical studies discussed above.

H1: Educational levels link positively to hourly wages, other things being equal.

H2: Education has a non-linear effect on hourly wages. That is, each educational level affects hourly wages differently.

H3: The hours worked are formulated as a function of family factors, hourly wages, and demographic controls, while the hourly wages are formulated as a function of educational levels, hours worked and demographic controls.

H4: Hours worked link negatively to hourly wages, while hourly wages link positively to hours worked.

H5: A higher level of English proficiency and a longer time of immigration are linked positively to hourly wages. By contrast, those who speak English poorly with a short time of immigration are linked negatively to hourly wages.

H6: The effects of all explanatory variables on the dependent variables differ across racial/ethnic groups.

9.2 Empirical Results and Discussions

Methodologically, the findings obtained from using various causal models in this analysis consistently show that, by comparison, the substantial discrepancy between the OLS and 2SLS models indicates that the simultaneity (or endogeneity)

bias in the OLS models is not trivial. The 2SLS results suggest that the log of hourly wages and hours worked are statistically significant with a proper sign, and are of much larger magnitude than the OLS results (see Tables 6-9). Moreover, other important results also reveal that the 2SLS method appears to be superior to the standard OLS method.

For example, first, the adjusted R square is much higher in every 2SLS model of the hourly wages equation than in every OLS regression model of the hourly wages. For example, it is over 0.9 in most 2SLS model of the predicted log of hourly wage, suggesting that over 90% of the model is explained by the variables included. By contrast, the adjusted R square is only about 0.2 or less in almost all OLS regression models of the log of hourly wages.

Second, the correlation coefficients between the error terms and the metric variables (i.e., log-hours worked and log-hourly wages) are highly and statistically significant at the 0.0001 level for all groups, indicating that all explanatory variables are correlated with the error terms. These results provide useful information regarding the extent of a potential endogeneity inherent in the OLS regression models (see Tables 5 and 5A).

Third, the results of Hausman's specification tests also show that the predicted error terms are statistically significant for almost all groups, except for native-born Asian Indian and Korean wives. However, it is important to note that since the sample size of these two groups is very small, I am cautious about making any conclusion

that there is no endogeneity problem in the models of these two groups (see Tables 5.1 and 5.1A).

Fourth, in order to purge the "contaminated" log of hours worked and hourly wages, I use the instrumental variables procedure and the reduced-form equations to obtain two new instruments (i.e., the predicted log of hours worked and hourly wages) as well as to solve the identification problem. According to the "order" condition and the "rank" condition (discussed in Chapter Three), the equation of employment and hourly wages in the 2SLS simultaneous equations systems are over-identified, suggesting that the number of the excluded explanatory variables is greater than the number of included endogenous variables.

The standard deviation of the predicted log of hours worked and of the predicted log of hourly wages is much smaller than those of the metric variables, suggesting that the predicted variables (or the new instruments) are reliable indicators of the amount of employment and hourly wages, relative to the original log of hours worked and hourly wages (see Tables 5.2 and 5.2A). Results in Table 5.3 and 5.3A reveal that the correlation coefficients between the predictors and metric variables are statistically significant at the 0.0001 level. In short, all these results indicate that the predicted log of hours worked and hourly wages are indeed good instruments (as discussed in Chapter 3).

Fifth, the *t*-values for the slope coefficients are much larger in most of the 2SLS models than in the OLS models. For example, the slope coefficients of family

factors and occupations are highly and statistically significant in almost all 2SLS models, while the slope coefficients of family factors and occupations in the OLS models are not statistically significant at the conventional level of 0.05 for most of the groups. Moreover, the slope coefficients of educational levels (especially at the level of Ph.D. and MA) in the 2SLS regression models are slightly greater than those in the OLS regression models (see Tables 10, 11, 12, 13).

Theoretically speaking, results from both OLS and 2SLS regression models suggest that Asian American wives do not need to have more education or work longer hours to earn consistent income with the non-Hispanic white wives. However, since the 2SLS results are more robust in this study, I will focus on discussing the 2SLS results.

2SLS results in Tables 11 and 13 suggest that the important impacts of educational attainment, and family factors on the income attainment of foreign-born and native-born Asian American and non-Hispanic white wives. As most previous studies suggest, education has a nonlinear effect on wage differences of women. The returns to a Ph.D. degree and MA degree are much higher than those to a high school dropout or those who have a high school degree. Substantial variations in the returns to education are also shown across groups[31].

[31] It is worth noting that since the sample size of foreign-born Pacific wives and native-born Asian Indian wives is very small, the results may not be robust. Statistically speaking, the estimates obtained from using a small sample size tends to have large standard errors.

In conclusion, this analysis finds little evidence that both immigrant and native-born Asian American wives need to be more educated or need to work longer hours to reach income parity with non-Hispanic white wives. It thus challenges the conventional wisdom that Asian American women experience severe racial discrimination in the U.S. labor market.

9.3 Main Contributions, Implications of this Analysis and Suggestions on Future Research

My dissertation seeks to draw upon and contribute to the recognition and understanding of minority groups' socioeconomic attainment. Substantively, I posit a theory of wage differences between Asian American wives and non-Hispanic white wives. Understanding the impacts of educational achievement and family on income attainment of Asian American women is a worthwhile theoretical issue because it consists of a wide variety of theoretical perspectives on social inequality in the U.S. labor market, such as human capital, assimilation/immigration, family, dual labor market, ethnic enclave, middleman minority and wages-employment theories. Most importantly, it reveals several important implications on social policies, such as education, social welfare and immigration policies. For example, many anti-poverty policies, such as affirmative action, were made based on the assumption that an increasing level of education among the disadvantaged or the poor will over time decrease the poverty rate. Empirical studies have shown that since both immigrant and native-born Asian Americans generally have a higher educational level than other

minority groups and the majority, policies designed to help poor Asian Americans are much more limited than those for other minority groups (Min 1995).

The other pivotal strength and contribution of my dissertation lies in the use of advanced quantitative and survey data analyses. Methodologically, labor market functions are modeled as two different causal systems. First, using the Ordinary Least Square Regression (i.e., OLS), hourly wages are modeled as a unidirectional causal mechanism—i.e., hourly wage rate is a function of educational levels, hours worked, other thing being equal. Second, a two-stage least square (i.e., 2SLS) simultaneous equation system is constructed that takes the endogeneity of wages into account. Employing both OLS and 2SLS has an important methodological implication because it allows me to further compare the robustness of empirical results more accurately and to clarify the controversial findings in the previous studies using the standard OLS method.

This analysis is just a beginning but not the end. Further research should be developed on several issues: first, how educational attainment, racial discrimination and family values embedded in Confucianism have an impact on the socioeconomic attainment of other minority groups, such as Indo-Chinese Americans (e.g., Hmong, Cambodian, Thailand, Vietnamese etc.), African Americans, Native Americans, compared to non-Hispanic whites; second, how gender differences (e.g., characteristics of husbands and wives) play an important role in determining the socioeconomic attainment of minority groups at the household level; third, how the

socioeconomic attainment of minority groups has an effect on the outcomes of various social policies and the governmental decision making process; and finally, how advanced statistical methods can help us construct more complex causal models and generate more robust results; 5) the extent to which sociological theories and empirical results can be generalized and be applied to the socioeconomic attainment of minority groups in a cross-national and cross-time setting.

Table 1

Socioeconomic Characteristics of Foreign-Born Asian American and Non-Hispanic White Wives and their Husbands (1990 PUMS, Weighted)

	Non-Hispanic White	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
Mean hourly wage rate	11.64	12.26	14.19	14.74	12.50	11.98	10.66	10.60
Mean log of hourly wage	2.16	2.178	2.34	2.34	2.20	2.10	2.09	2.13
Human capital*								
% High school degree	25.04	16.00	12.06	13.28	34.57	31.69	21.27	33.23
% Some college	27.97	19.82	24.94	17.97	28.08	21.60	24.99	29.08
% BA	14.76	22.80	43.06	29.32	16.93	20.24	11.94	5.93
% MA	6.58	12.53	3.63	16.08	4.49	4.44	2.87	0.30
% Ph.D.	2.99	3.46	4.61	11.16	2.08	2.31	1.53	0.30
Occupation*								
% Professional	30.25	39.50	43.45	47.35	28.68	40.27	24.79	23.57
% Clerical	21.48	16.94	22.81	20.91	17.88	11.70	13.43	25.93
% Sales	20.19	14.95	17.76	10.62	24.84	20.31	19.71	29.70
% Operator	4.08	19.24	9.86	9.70	13.30	19.28	31.65	10.70
% Laborer	13.48	1.15	1.20	1.64	2.07	2.41	3.76	2.62

Assimilation								
% English not well*	4.14	7.31	0.21	0.82	0.87	2.68	2.17	1.48
% Immigrate > 10 years	10.12	20.14	16.44	20.90	11.56	23.3	11.21	66.17
% Immigrate 5-10 years ago	11.15	25.00	22.11	25.78	8.57	18.01	31.97	20.18
% Immigrate < 5 years	78.73	54.86	61.45	53.32	79.87	58.69	56.82	13.65
Family factors								
Mean family size	3.843	3.905	4.27	4.0287	3.03	3.76	4.42	4.979
% <=2 kids under age 5	19.24	21.92	25.00	24.38	11.86	21.30	25.84	31.75
% < =2 children over age 5	47.95	48.01	49.46	57.13	42.51	54.48	45.48	47.77
% >= 3 kids over age 5	12.15	13.07	17.80	11.79	5.74	11.55	23.73	29.38
Mean husband's log-wages	18.02	17.91	18.49	23.34	29.04	20.37	14.88	11.69
Mean husband's log-wages	2.56	2.54	2.59	2.83	3.04	2.55	2.39	2.24
% Husband's	17.83	15.24	13.82	8.38	12.46	20.88	16.49	37.59

high school								
% Husband's	22.09	19.71	35.66	13.31	18.69	23.52	29.19	49.85
some college								
% Husband	14.04	22.69	38.20	26.25	44.00	29.72	16.44	7.55
with BA								
% Husband	7.44	15.24	4.29	28.23	14.29	15.08	6.53	2.14
with MA								
% husband	6.88	17.38	8.03	23.82	10.55	10.79	4.05	2.87
with Ph.D.								
Region								
% Northeast	29.01	28.37	10.92	36.98	12.60	19.97	11.81	3.56
residence								
% Midwest	13.87	6.99	8.75	15.75	9.03	11.36	11.03	4.75
residence								
% South	27.61	14.18	13.70	24.40	18.05	23.58	30.57	8.10
% Pacific	25.19	47.87	64.13	21.47	54.28	40.95	41.93	73.29
% Mountain*	4.32	2.59	2.50	1.4	6.03	4.14	4.65	10.39
N	17,988	9,593	10,468	4,775	2,404	5,292	5,158	337

Note: Figures obtained from 1990 U. S. Census 1% data for Non-Hispanic white and 5% data for Asian American women.

Note: Southeast Asian Americans include Vietnamese, Hmong, Laotian, Cambodian, Thai, Indonesian, Malayan and Burmese, whereas Asian and Other Pacific Islanders refer to Hawaiian, Samoan, Tahitian, Tongan, Polynesian, Guamanian, Northern, Mariana Islander, Palauan, Micronesian and Fijian.

Note: * denotes the reference group for regression analyses. For educational levels, the reference group is the high school dropout. For the occupational levels, the reference group refers to those who did not work in the labor market in 1989. The reference group for English Speaking not well is the native speakers and those who do not speak English at all, while it the Mountain area of the variable residence.

Table 2

Socioeconomic Characteristics of Native-Born Asian American and Non-Hispanic White Wives and their Husbands (1990 PUMS, Weighted)

	Non-Hispanic Whites	Chinese	Filipinos	Asian Indians	Japanese	Koreans	South-east Asians	Pacific Islander
Human capital*								
% high school	34.73	14.17	28.68	20.79	22.19	22.70	17.00	40.77
% Some college	31.46	27.86	38.60	17.82	34.55	27.66	37.50	33.58
% BA	16.02	36.87	16.20	24.75	29.36	28.37	24.00	8.34
% MA	6.11	12.51	3.57	14.85	8.36	5.67	6.50	2.94
% Ph.D.	1.74	5.93	1.63	10.89	2.82	8.51	2.50	1.03
Occupation*								
% Professional	38.84	46.64	36.39	50.78	36.49	37.78	28.79	30.98
% Clerical	33.38	26.14	32.62	19.02	33.50	29.34	26.17	29.25
% Sales	16.56	6.02	14.74	11.86	7.63	9.17	15.67	19.70
% Operator	2.61	2.94	5.59	1.14	1.88	3.57	7.22	5.71
% Laborer	8.61	0.68	1.33	3.88	2.47	6.13	6.71	2.23
Family factors								
Mean family size	3.40	3.28	3.87	3.60	3.29	3.01	3.63	4.35
% <=2 kids under age 5	19.53	27.09	27.21	22.77	18.62	17.73	28.00	22.23
% <= 2 kids over age 5	46.90	42.03	49.84	45.54	45.93	36.88	40.50	48.97
% > =3 kids	8.91	5.69	12.09	10.89	7.44	4.96	12.00	21.48

over age 5								
Mean Husband's wages	18.13	22.80	17.40	20.12	22.19	18.76	14.67	15.54
Mean Husband's log-wages	2.62	2.89	2.62	2.70	2.84	2.75	2.41	2.49
% Husband's high school	29.69	10.99	29.84	19.39	22.25	20.69	34.00	43.98
% Some college of Husband	28.47	25.12	45.20	18.91	31.75	29.85	37.40	40.43
% Husband with BA	17.55	32.62	18.43	20.30	30.08	28.33	18.11	11.08
% Husband with MA	6.37	14.07	3.60	22.43	8.70	11.60	6.78	2.84
% Husband with Ph.D.	4.46	13.53	2.93	18.97	7.23	9.52	3.72	1.66
Economic condition	53,701	73,577	52,962	70,544	52,480	62,517	49,675	50,356
Region*								
% Northeast	20.35	15.17	4.50	27.72	2.47	10.64	16.00	2.67
% Midwest	28.03	5.10	4.50	17.82	4.29	12.06	14.00	3.83
% South	33.31	7.35	7.91	34.65	2.97	14.18	21.50	9.30
% Pacific	12.40	68.82	80.47	17.82	85.97	62.41	43.00	79.96
% Mountain*	5.91	3.56	2.64	1.98	4.29	0.71	5.50	4.24

Mean hours worked	1700	1828.26	1809.94	1825.0	1758.0	1821.33	1734.67	1797.3
Mean log-hours worked in 1989	7.27	7.37	7.38	7.38	7.31	7.38	7.3	7.37
Mean hourly wages	11.54	17.66	13.20	14.42	14.84	13.57	12.90	12.63
Mean log-hourly wages	2.16	2.61	2.29	2.38	2.46	2.36	2.23	2.16
N	242,426	1,687	1,290	101	3,946	141	272	1,462

Note: Figures obtained from 1990 U. S. Census 1% data for Non-Hispanic white and 5% data for Asian American women.

Note: Southeast Asian Americans include Vietnamese, Hmong, Laotian, Cambodian, Thai, Indonesian, Malayan and Burmese, whereas Asian and Other Pacific Islanders refer to Hawaiian, Samoan, Tahitian, Tongan, Polynesian, Guamanian, Northern, Mariana Islander, Palauan, Micronesian and Fijian.

Note: * denotes the reference group for regression analyses.

Table 3A

OLS Estimates of the Pooled Regression of Log-Hourly Wages of Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Lnwage = 2.436intercept*** – 0.152lnhours*** + 0.084high school*** + 0.209somecollege*** + 0.38 BA***

(0.026) (0.002) (0.006) (0.006) (0.007)

+ 0.601MA*** + 0.72Ph.D.*** + 0.033 English well*** - 0.026 English poor* – 0.287 immigrated < 5 years***

(0.008) (0.012) (0.007) (0.015) (0.018)

- 0.074 immigrated > 20 years*** + 0.058 foreign-born*** + 0.764 professional*** + 0.59 clerical***

(0.012) (0.009) (0.017) (0.017)

+ 0.574 sales*** + 0.55 operator*** + 0.3 laborer***

(0.018) (0.017) (0.017)

+ 0.184 Northeast*** + 0.039 South*** + 0.193 Pacific*** + 0.03 Midwest***

(0.007) (0.007) (0.008) (0.01)

- 0.152 family economy + 0.0001 two kids < age 5** – 0.09 two kids > age 5** – 0.181 more than 3kids > age 5*

(0.004) (0.004) (0.003) (0.006)

+ 0.0006 family size – 0.002 husband's wage – 0.003 husband's high school + 0.005 husband's some college

(0.001) (0.003) (0.005) (0.005)

- 0.005 husband's BA – 0.004 husband's MA + 0.00009 husband's Ph.D.

(0.006) (0.007) (0.008)

+ 0.002 Chinese** + 0.09 Filipino** + 0.017 Indian** + 0.106 Japanese** – 0.01 Korean + 0.088 Southeast

(0.017) (0.017) (0.026) (0.023) (0.025) (0.033)

Adj-R square = 0.19 N = 192064

Note: *** refers to $p < 0.001$; ** refers to $p < 0.05$; * refers to $p < 0.1$, (two-tailed test).

Note: Standard errors are in parentheses.

Table 3

OLS Estimates of the Regression of Log-Hourly Wages of Foreign-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variables	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
Intercept	2.6***	3.14***	4.03***	2.8***	2.89***	4.04***	0.43***	2.53***
	(0.095)	(0.145)	(0.132)	(0.180)	(0.230)	(0.179)	(0.143)	(0.507)
Log of hours	-0.17***	-0.20***	-0.3***	-0.16***	-0.16***	-0.34***	-0.21***	-0.14**
worked	(0.009)	(0.011)	(0.013)	(0.017)	(0.022)	(0.018)	(0.015)	(0.054)
Human capital								
High school	0.047**	0.05**	0.11***	0.15***	0.104**	0.061	0.060**	0.036
	(0.019)	(0.025)	(0.030)	(0.045)	(0.052)	(0.037)	(0.027)	(0.093)
Some college	0.17***	0.18***	0.21***	0.19***	0.21***	0.23***	0.20***	0.125**
	(0.020)	(0.025)	(0.028)	(0.044)	(0.057)	(0.042)	(0.027)	(0.098)
BA	0.32***	0.37***	0.39***	0.19***	0.43***	0.31***	0.44***	0.138
	(0.025)	(0.026)	(0.028)	(0.043)	(0.066)	(0.044)	(0.036)	(0.162)
MA	0.44***	0.56***	0.53***	0.38***	0.5***	0.44***	0.57***	0.244
	(0.032)	(0.031)	(0.051)	(0.049)	(0.096)	(0.067)	(0.063)	(0.597)
Ph.D.	0.66***	0.75***	0.61***	1.31***	0.61***	0.97***	0.73***	0.219
	(0.040)	(0.045)	(0.047)	(0.052)	(0.127)	(0.084)	(0.082)	(0.564)
Age	-0.001*	-3.4E-5*	8.1E-5	3.54E-5	2.9E-5	0.002**	-3.64E-4	0.005
	(0.000)	(8.3E-5)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.004)
Assimilation								
Immigrate<	-0.05*	-0.12***	-0.21***	-0.25***	-0.04	-0.18***	-0.21***	-0.2
5 years	(0.029)	(0.023)	(0.024)	(0.034)	(0.077)	(0.040)	(0.035)	(0.135)

Immigrate>1	0.15***	0.15***	0.16***	0.16***	0.105*	0.168*	0.09***	-0.096
0 years	(0.021)	(0.018)	(0.018)	(0.027)	(0.057)	(0.032)	(0.022)	(0.098)
English	0.023**	0.12***	0.04**	0.062**	0.048	0.016	0.004	0.014
speaking	(0.013)	(0.017)	(0.016)	(0.025)	(0.034)	(0.028)	(0.025)	(0.079)
well								
English not	-0.19***	-0.19***	0.15	-0.1	-0.40**	0.13**	-0.08	-0.25
well	(0.036)	(0.032)	(0.168)	(0.134)	(0.190)	(0.078)	(0.072)	(0.409)
Occupation								
Professional	0.55***	0.18***	0.23***	0.24***	-0.030	0.110*	0.187**	0.292
	(0.052)	(0.031)	(0.042)	(0.043)	(0.062)	(0.060)	(0.054)	(0.211)
Clerical	0.34***	0.028	-0.05***	-0.032	-0.159**	0.021	0.054	-0.085
	(0.052)	(0.035)	(0.043)	(0.048)	(0.066)	(0.067)	(0.057)	(0.212)
Sales	0.35***	-0.14**	-0.23***	-0.09*	-0.36***	-0.157**	-0.19***	-0.243
	(0.055)	(0.037)	(0.043)	(0.055)	(0.067)	(0.065)	(0.056)	(0.212)
Operator	0.25***	-0.029	-0.065	0.025	-0.183*	-0.031	0.047	-0.135
	(0.052)	(0.048)	(0.054)	(0.075)	(0.095)	(0.065)	(0.059)	(0.152)
Laborer	0.14***	-0.3***	-0.14**	-0.14**	-0.22	-0.034	0.02	-0.31
	(0.055)	(0.038)	(0.049)	(0.058)	(0.080)	(0.067)	(0.056)	(0.230)
Family								
factors								
Economic	3.54E-7	2.51E-7	-3.94E-7	-2.62E-7	2.64E-7	-4.66E-7	4.85E-7	-1E-7
condition	(3.1E-7)	(2.1E-7)	(2.5E-7)	(2.7E-7)	(5.2E-7)	(3.0E-7)	(4.0E-7)	***
								(1.8E-7)
# of kids age	0.048**	0.067**	-0.001	0.062*	0.108	-0.006	0.006	-0.247**
under 5	(0.024)	(0.023)	(0.024)	(0.036)	(0.072)	(0.041)	(0.032)	(0.123)
<2 age over	-0.098**	0.004	0.040	0.042	-0.079	0.047	0.034	0.114
5	(0.031)	(0.033)	(0.031)	(0.048)	(0.100)	(0.058)	(0.040)	(0.144)

> 3 kids age	-0.124*	0.045	-0.010	0.136	0.029	-0.295	-0.032	-0.130
over 5	(0.006)	(0.105)	(0.063)	(0.147)	(0.274)	(0.337)	(0.040)	(0.199)
Family size	-0.001	0.011**	-0.003	0.010	-0.008	0.002*	0.002	-0.005
	(0.004)	(0.005)	(0.005)	(0.008)	(0.015)	(0.011)	(0.006)	(0.020)
Husband	0.020	-0.010	0.011	-0.016	0.001	0.018	-0.032*	0.205**
log-wages	(0.009)	(0.012)	(0.035)	(0.020)	(0.029)	(0.017)	(0.017)	(0.067)
Husbands	0.004	0.037	-0.071**	0.152**	0.113	0.003	-0.020	0.041
high school	(0.019)	(0.026)	(0.035)	(0.063)	(0.093)	(0.053)	(0.031)	(0.099)
Husband	0.013	0.011	-0.078**	0.125**	0.075	0.020	0.020	0.011
some college	(0.018)	(0.026)	(0.032)	(0.056)	(0.089)	(0.057)	(0.027)	(0.099)
BA degree of	-0.008	0.0156	-0.075**	0.169**	0.082	0.058	0.010	-0.177
husband	(0.021)	(0.025)	(0.032)	(0.052)	(0.086)	(0.057)	(0.032)	(0.175)
MA degree	-0.036*	0.012	-0.088**	0.118	0.149	-0.004	-0.016	0.454
of husband	(0.027)	(0.026)	(0.043)	(0.052)	(0.093)	(0.057)	(0.044)	(0.295)
Ph.D. degree	-0.004	-0.016	-0.001**	0.143**	-0.016	0.024	-0.0003	0.077
of husband	(0.028)	(0.029)	(0.043)	(0.055)	(0.097)	(0.061)	(0.056)	(0.310)
Region								
Northeast	0.29***	0.137**	0.332**	0.143*	0.35***	0.247**	0.144**	0.025
	(0.034)	(0.048)	(0.110)	(0.093)	(0.080)	(0.065)	(0.053)	(0.221)
South	0.045	-0.003	-0.006	-0.092	0.091	0.088	-0.063	0.162
	(0.045)	(0.05)	(0.062)	(0.094)	(0.077)	(0.064)	(0.047)	(0.189)
Pacific	0.17***	0.2***	0.18***	0.092	0.29***	0.27***	0.083	0.138
	(0.046)	(0.047)	(0.055)	(0.095)	(0.069)	(0.062)	(0.047)	(0.152)
Midwest	0.073	0.044	0.194**	-0.036	0.044	0.148	-0.083**	0.186
	(0.050)	(0.054)	(0.065)	(0.096)	(0.084)	(0.069)	(0.047)	(0.223)
Adj-R_	0.200	0.321	0.272	0.291	0.182	0.200	0.205	0.173

N	10,812	7,575	6, 229	3,808	1,630	3,680	4,110	238

Note: *** refers to $p < 0.001$; ** refers to $p < 0.05$; * refers to $p < 0.1$, (two-tailed test).

Note: Standard errors are in parentheses.

Table 4

OLS Estimates of the Regression of Log-Hourly Wages of Native-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variables	Non-Hispanic White	Chinese	Asian Indian	Filipino	Japanese	Korean	Southeast Asian	Pacific Islander
Intercept	2.224***	3.781***	4.059**	3.907***	3.347***	4.370**	4.740***	3.201***
	(0.026)	(0.266)	(1.627)	(0.306)	(0.173)	(1.328)	(0.828)	(0.269)
Hours worked	-0.14***	-0.25***	0.008	-0.26***	-0.16***	-0.39**	-0.34***	-0.21***
	(0.002)	(0.024)	(0.194)	(0.031)	(0.017)	(0.135)	(0.087)	(0.029)
Human capital								
High school	0.084***	0.086	-0.313	0.250***	-0.005	0.291	0.046	0.166**
	(0.005)	(0.113)	(0.451)	(0.070)	(0.068)	(0.453)	(0.253)	(0.057)
Some college	0.210***	0.212*	-0.219	0.354***	0.055	0.558	0.277	0.311***
	(0.006)	(0.110)	(0.467)	(0.070)	(0.068)	(0.462)	(0.243)	(0.059)
BA	0.392***	0.441***	0.089	0.595***	0.232***	0.919*	-0.125	0.462***
	(0.007)	(0.110)	(0.462)	(0.082)	(0.070)	(0.464)	(0.273)	(0.082)
MA	0.620***	0.522***	0.059	0.680***	0.394***	0.972*	0.790**	0.714***
	(0.008)	(0.118)	(0.513)	(0.130)	(0.077)	(0.538)	(0.350)	(0.118)
Ph.D.	0.720***	0.765***	0.689	0.386**	0.494***	1.013*	-0.104	0.233
	(0.018)	(0.126)	(0.501)	(0.182)	(0.091)	(0.519)	(0.464)	(0.173)
Age	0.001	-0.001	-0.003	-5.18E-5	8.27-E5	-0.002	0.002	0.019
	(0.001)	(0.002)	(0.012)	(0.002)	(0.01)	(0.007)	(0.007)	(0.019)
Occupation								
Professional	0.793***	0.044	-0.003	-0.007	0.031	0.148	0.075	0.004
	(0.018)	(0.047)	(0.331)	(0.077)	(0.032)	(0.213)	(0.195)	(0.067)

Clerical	0.624***	-0.083	-0.162	-0.149**	-0.15***	0.186	-0.458**	-0.063
	(0.018)	(0.057)	(0.420)	(0.080)	(0.034)	(0.254)	(0.225)	(0.070)
Sale	0.613***	-0.192**	-0.414	-0.27**	-0.40***	-0.026	-0.484*	-0.27***
	(0.018)	(0.087)	(0.483)	(0.092)	(0.051)	(0.352)	(0.304)	(0.075)
Operator	0.594***	-0.184	-0.365	-0.104	-0.186**	0.873	-0.293	0.251*
	(0.018)	(0.141)	(0.693)	(0.140)	(0.088)	(0.760)	(0.350)	(0.131)
Laborer	0.316***	-0.250**	-0.343	-0.128	-0.26***	0.158	-0.027	-0.035
	(0.018)	(0.122)	(0.922)	(0.119)	(0.076)	(0.465)	(0.316)	(0.093)
Family factors								
Husband's hourly wage	-0.001	0.039	-0.343*	0.033	-0.002	-0.075	-0.007	0.037
	(0.002)	(0.033)	(0.170)	(0.038)	(0.021)	(0.168)	(0.086)	(0.032)
Husband's high school degree	0.002	0.008	-0.186	-0.127	-0.026	0.072	0.238	0.131**
	(0.005)	(0.106)	(0.470)	(0.077)	(0.059)	(0.662)	(0.215)	(0.056)
Some college of husband	0.007	0.050	-0.220	-0.039	-0.069	0.035	-0.041	0.112*
	(0.005)	(0.100)	(0.467)	(0.076)	(0.059)	(0.662)	(0.224)	(0.058)
BA degree of husband	0.001	0.032	0.082	0.114	-0.010	-0.113	0.342	0.064
	(0.003)	(0.100)	(0.462)	(0.086)	(0.060)	(0.656)	(0.257)	(0.075)
MA degree of husband	-0.005	0.066	0.059	-0.081	0.023	-0.244	0.204	0.113
	(0.007)	(0.107)	(0.513)	(0.132)	(0.067)	(0.690)	(0.325)	(0.122)
Ph.D. degree of husband	-0.015*	-0.047	0.698	0.082	-0.036	0.152	-0.228	-0.067
	(0.009)	(0.109)	(0.501)	(0.140)	(0.071)	(0.699)	(0.384)	(0.167)
Economic	8.939E-7	-3.52E-7	4.62-7	-5.31E-7	6.167E-7	2.29E-7	2.81E-7	5.61E-7

pressure	(6.61E-7)	(4.63E-7)	(2.14-7)	(7.25E-7)	(3.61E-7)	(3.1E-7)	(2.38E-7)	(7.52E-7)
>=2 kids	0.067***	0.125***	0.423	-0.083*	-0.011	-0.107	-0.064	-0.115**
age under 5	(0.005)	(0.038)	(0.290)	(0.044)	(0.028)	(0.191)	(0.164)	(0.043)
<= 2 kids	-0.13***	-0.045	0.119	-0.057	-0.053**	0.102	-0.025	-0.068*
age over 5	(0.007)	(0.034)	(0.241)	(0.042)	(0.022)	(0.160)	(0.144)	(0.041)
>= 3 kids	-0.25***	0.003	-0.041	-0.060	-0.133**	-0.145	-0.110	-0.100**
age over 5	(0.018)	(0.033)	(0.389)	(0.064)	(0.041)	(0.314)	(0.232)	(0.050)
Family size	0.002	-0.001	-0.096	-0.010	-0.004	-0.035	-0.052	-0.009
	(0.001)	(0.013)	(0.105)	(0.014)	(0.009)	(0.058)	(0.052)	(0.010)
Region								
Northeast	0.180***	0.305**	-0.256	0.125	0.300***	0.747	0.049	0.356**
	(0.007)	(0.098)	(0.924)	(0.153)	(0.087)	(0.842)	(0.304)	(0.140)
South	0.041***	0.112	-0.858	-0.001	-0.001	0.053	-0.271	-0.118
	(0.007)	(0.107)	(0.914)	(0.152)	(0.079)	(0.352)	(0.312)	(0.107)
Pacific	0.200***	0.338***	-0.364	0.159***	0.222***	0.417	-0.043	0.219**
	(0.008)	(0.092)	(0.934)	(0.126)	(0.052)	(0.822)	(0.286)	(0.092)
Midwest	0.026***	0.193*	-0.727	-0.168	0.109	0.106	-0.154	0.091
	(0.007)	(0.116)	(0.944)	(0.153)	(0.072)	(0.810)	(0.317)	(0.122)
Adj-R square	0.184	0.198	0.12	0.167	0.151	0.143	0.258	0.158
N	187,707	1,410	71	989	3,217	98	133	1,168

Note: *** refers to $p < 0.001$; ** refers to $p < 0.05$; * refers to $p < 0.1$, (two-tailed test).

Note: Standard errors are in parentheses.

Table 5

Correlation Coefficients between the Disturbances of Employment and the Disturbances of Hourly Wages of Foreign-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variables	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
Pearson r	-0.18***	-0.2***	0.16***	-0.15***	-0.18***	-0.30***	-0.21***	-0.18***
N	10,813	7,576	6,222	3,809	1,631	3,681	4,111	237

Note: ***refers to $p < 0.001$, **refers to $p < 0.05$, * refers to $p < 0.1$ (two-tailed test).

Table 5A

Correlation Coefficients between the Disturbance of the Log-Hours Equation and the Disturbance of the Log-Hourly Wages Equation of Native-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variables	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	Southeast Asian	Pacific Islander
Pearson r	-0.15***	-0.27***	-0.26***	-0.02***	-0.16***	-0.3***	-0.36***	-0.22***
N	187,735	1,411	990	68	3,218	96	134	1169

Note: ***refers to $p < 0.001$, **refers to $p < 0.05$, * refers to $p < 0.1$ (two-tailed test).

Table 5.1

Hausman's Specification Test for Endogeneity of Foreign-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variables	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
Intercept	-2.01***	-1.44***	3.31***	-6.54***	3.31***	0.366	-3.90***	2.81**
	(0.382)	(0.380)	(0.453)	(0.562)	(0.453)	(0.623)	(0.583)	(1.184)
Predicted	0.59***	0.49***	-0.15***	1.21***	-0.15***	0.239**	0.80***	-0.097
log-hours	(0.053)	(0.051)	(0.063)	(0.077)	(0.063)	(0.084)	(0.079)	(0.162)
Residual	-0.12***	-0.13***	-0.12***	-0.10***	-0.12***	-0.24***	-0.14***	-0.09**
v1i	(0.007)	(0.009)	(0.018)	(0.012)	(0.018)	(0.013)	(0.011)	(0.038)
Adj-R square	0.037	0.039	0.029	0.076	0.029	0.082	0.061	0.059
N	10,1812	7,575	6,229	3,808	1,630	3,680	4,110	236
Intercept	7.03***	7.21***	7.56***	6.92***	7.56***	7.26***	70.3***	7.42***
	(0.048)	(0.040)	(0.144)	(0.060)	(0.144)	(0.081)	(0.074)	(0.316)
Log-wages	0.11***	0.08***	-0.144**	0.18***	-0.144**	0.062**	0.17***	-0.059
	(0.022)	(0.018)	(0.065)	(0.025)	(0.065)	(0.037)	(0.035)	(0.149)
Residual	-0.13***	-0.13***	-0.13***	-0.1***	-0.13***	-0.21***	-0.14***	-0.12**
v2i	(0.007)	(0.007)	(0.019)	(0.011)	(0.019)	(0.011)	(0.010)	(0.045)
Adj-R square	0.032	0.039	0.029	0.033	0.029	0.088	0.045	0.020
N	10,812	7,575	6,229	3,808	1,630	3,680	4,110	236

Note: ***refers to $p < 0.001$, **refers to $p < 0.05$, * refers to $p < 0.1$ (two-tailed test).

Note: Standard errors are in the parentheses.

Table 5.1A

Hausman's Tests for Endogeneity of Native-Born Asian American and Non-Hispanic White Wives

(1990 PUMS, Weighted)

Variables	Non-Hispanic white	Chinese	Filipino	Japanese	Korean	Pacific Islander
Intercept	-1.93***	-1.43***	-2.55***	0.29	3.01**	-0.27**
	(0.088)	(0.380)	(1.18)	(0.64)	(1.43)	(0.33)
Predicted log-hours	0.56***	-0.07	0.66***	0.3	-0.9	0.33***
	(0.012)	(0.11)	(0.16)	(0.9)	(0.11)	(0.11)
v1i	-0.1***	-0.17**	-0.16***	-0.11***	-0.02**	-0.13**
	(0.002)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)
Adj-R square	0.029	0.07	0.07	0.029	0.05	0.05
N	187,734	1,410	989	1,630	96	1168
	Non-Hispanic white	Chinese	Filipino	Japanese	Korean	Pacific Islander
Intercept	7.010***	7.37***	6.95***	7.16***	7.55***	7.05***
	(0.012)	(0.18)	(0.17)	(0.12)	(0.38)	(0.163)
Log-wages	0.123***	-0.004	0.18**	0.1**	0.064	0.15**
	(0.006)	(0.07)	(0.08)	(0.05)	(0.16)	(0.08)
v2i	-0.105***	0.18***	-0.6***	-0.12***	-0.14**	-0.13**
	(0.002)	(0.02)	(0.019)	(0.01)	(0.06)	(0.02)
Adj-R square	0.024	0.07	0.07	0.03	0.04	0.05
N	187,734	1,410	989	3,217	95	1,168

Note: ***refers to $p < 0.001$, **refers to $p < 0.05$, * refers to $p < 0.1$ (two-tailed test).

Note: Standard deviations are in parentheses.

Table 5.2

Standard Deviations of the Observed Log-Hours, Predicted Log-Hours, Observed Log-wages and Predicted Log-Wages of Foreign-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variable	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
Observed log-hours	0.718 (11,935)	0.69 (1,513)	0.61 (1,158)	0.74 (119)	0.63 (3,482)	0.57 (127)	0.72 (170)	0.62 (1,264)
Observed log-wages	0.728 (11,823)	0.68 (1,498)	0.66 (1,158)	0.77 (119)	0.64 (3,459)	0.66 (125)	0.79 (169)	0.64 (1,174)
Predicted log-hours	0.134 (13,282)	0.16 (1,426)	0.13 (990)	0.46 (69)	0.13 (3,240)	0.13 (101)	0.36 (135)	0.16 (1,174)
Predicted log-wages	0.306 (13,282)	0.26 (1,426)	0.24 (990)	0.53 (69)	0.24 (3,240)	0.36 (101)	0.45 (135)	0.24 (1,174)

Note: Sample size is in the parentheses.

Table 5.2A

Standard Deviations of the Observed Log-Hours, Predicted Log-Hours, Observed Log-wages and Predicted Log-Wages of Native-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variable	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
Observed log-hours	0.726 (205,359)	0.663 (8,300)	0.592 (9,496)	0.672 (4,085)	0.788 (1,954)	0.704 (4,443)	0.664 (4,524)	0.705 (272)
Observed log-wages	0.729 (203,314)	0.774 (8,203)	0.706 (9,461)	0.792 (4,044)	0.707 (1,934)	0.824 (4,268)	0.692 (4,164)	0.606 (271)
Predicted log-hours	0.141 (223,850)	0.168 (7,668)	0.114 (6,249)	0.162 (3,847)	0.277 (1,650)	0.155 (3,837)	0.133 (4,164)	0.239 (240)
Predicted log-wages	0.306 (223,850)	0.416 (7,668)	0.315 (6,249)	0.421 (3,847)	0.295 (1,650)	0.295 (3,837)	0.288 (4,164)	0.302 (240)

Note: Sample size is in the parentheses.

Table 5.3

Correlation Coefficients between the Observed Endogenous Variables and the Predicted Endogenous Variables of Foreign-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

	(1)	(2)	(3)	(4)
Non-Hispanic white	Log-hours	Predicted log-hours	Log-wages	Predicted log-wages
Log-hours	1.000	0.183***	-0.135***	-0.135***
	(N = 11,935)	(N = 10,916)	(N = 11,823)	(N = 11,823)
Predicted-log hours	0.183***	1.000	0.105***	0.249***
	(10,916)	(11,935)	(10,813)	(13,282)
Log-wages	-0.135***	0.105***	1.000	0.419***
	(11,823)	(10,813)	(11,935)	(10,813)
Predicted log-wages	0.046***	0.0460***	0.105***	1.000
	(10,916)	(11,823)	(10,813)	(13,282)
	(1)	(2)	(3)	(4)
Chinese	Log-hours	Predicted log-hours	Log-wages	Predicted log-wages
Log-hours	1.000	0.255***	-0.149***	0.050***
	(N = 8,300)	(N = 7,668)	(N = 8,203)	(N = 7,668)
Predicted-log hours	0.255***	1.000	0.108***	0.198***
	(7,668)	(7,668)	(7,576)	&, 668)
Log-wages	-0.149***	0.108***	1.000	0.544***
	(8,203)	(7,576)	(8,203)	(7,576)
Predicted log-wages	0.050***	0.198***	0.544***	1.000
	(7,668)	(7,668)	(7,576)	(7,668)
	(1)	(2)	(3)	(4)
Japanese	Log-hours	Predicted log-hours	Log-wages	Predicted log-

				wages
Log-hours	1.000	0.352***	-0.190***	-0.051**
	(1,954)	(1,650)	(1,934)	(1,650)
Predicted-log hours	0.352***	1.000	-0.059**	-0.144***
	(1,650)	(1,654)	(1,631)	(1,650)
Log-wages	-0.190***	-0.059**	1.000	0.414***
	(1,934)	(1,631)	(1,954)	(1,631)
Predicted log-	-0.051**	-0.144***	0.414***	1.000
wages	(1,650)	(1,650)	(1,631)	(1,954)
	(1)	(2)	(3)	(4)
Asian Indian	Log-hours	Predicted log-hours	Log-wages	Predicted log-
				wages
Log-hours	1.000	0.239***	-0.070***	0.111***
	(4,085)	(3847)	(4044)	(3,847)
Predicted-log hours	0.239***	1.000	0.246**	0.464***
	(3,847)	(3,837)	(3,809)	(3,847)
Log-wages	-0.070***	0.246**	1.000	0.530***
	(4044)	(3,809)	(4268)	(3,809)
Predicted log-	0.111***	0.464***	0.530***	1.000
wages	(3,847)	(3,809)	(3,809)	(3,847)
	(1)	(2)	(3)	(4)
Filipino	Log-hours	Predicted log-hours	Log-wages	Predicted log-
				wages
Log-hours	1.000	0.199***	-0.145***	0.118***
	(N = 9,496)	(N = 6,294)	(N = 9,461)	(N = 6,249)
Predicted-log hours	0.199***	1.000	0.277***	0.595***
	(6,294)	(9,496)	(6,230)	(6,249)

Log-wages	-0.145***	0.277***	1.000	0.465***
	(9,461)	(6,230)	(9,496)	(6,230)
Predicted log-wages	0.118***	0.595***	0.465***	1.000
	(6,249)	(6,249)	(6,230)	(9,496)
	(1)	(2)	(3)	(4)
Korean	Log-hours	Predicted log-hours	Log-wages	Predicted log-wages
Log-hours	1.000	0.221***	-0.253***	0.028***
	(N = 4,443)	(N = 3,837)	(N = 4,268)	(N = 3,837)
Predicted-log hours	0.221***	1.000	0.045***	0.128***
	(3837)	(3,837)	(3,681)	(3,837)
Log-wages	-0.253***	0.045**	1.000	0.355***
	(4,268)	(3,681)	(4,268)	(3,681)
Predicted log-wages	0.028***	0.128***	0.355***	1.000
	(3,837)	(3,837)	(3,681)	(3,837)
	(1)	(2)	(3)	(4)
Southeast Asian	Log-hours	Predicted log-hours	Log-wages	Predicted log-wages
Log-hours	1.000	0.198***	-0.159***	0.074***
	(N = 4,524)	(N = 4,164)	(N = 4,471)	(N = 4,146)
Predicted-log hours	0.198***	1.000	0.155**	0.372***
	(4,164)	(3,837)	(4,111)	(4,146)
Log-wages	-0.156***	0.155**	1.000	0.416***
	(4,471)	(4,111)	(4,268)	(4,111)
Predicted log-wages	0.074***	0.372***	0.416***	1.000
	(4,164)	(4,164)	(4,111)	(4,164)

	(1)	(2)	(3)	(4)
Pacific Islander	Log-hours	Predicted log-hours	Log-wages	Predicted log-wages
Log-hours	1.000	0.346***	-0.200***	-0.027
	(N = 272)	(N = 240)	(N = 271)	(N = 240)
Predicted-log hours	0.346***	1.000	-0.037	-0.077***
	(240)	(240)	(240)	(240)
Log-wages	-0.200***	-0.037	1.000	0.508***
	(271)	(240)	(240)	(240)
Predicted log-wages	0.027	-0.077	0.508***	1.000
	(240)	(240)	(240)	(240)

Note: *** refers to p< 0.001, ** refers to p< 0.05, * refers to p<0.1.

Note: Sample size is in the parentheses.

Table 5.3A

Correlation Coefficients between the Observed Endogenous Variables and the Predicted Endogenous Variables of Native-Born Non-Hispanic White Wives (1990 PUMS, Weighted)

	(1)	(2)	(3)	(4)
Non-Hispanic white	Log-hours	Predicted log-hours	Log-wages	Predicted log-wages
Log-hours	1.000	0.189***	-0.112***	0.049***
	(N = 205,359)	(N = 189,619)	(N = 203,314)	(189,619)
Predicted-log hours	0.189***	1.000	0.105***	0.261***
	(189,619)	(223,850)	(187,735)	(223,850)
Log-wages	-0.112***	0.105***	1.000	0.407***
	(203,314)	(187,735)	(203,314)	(187,735)
Predicted log-wages	0.049***	0.261***	0.407***	1.000
	(189,619)	(223,850)	(187,735)	(223,850)

Note: *** refers to p< 0.001, ** refers to p< 0.05, * refers to p<0.1.

Note: Sample size is in the parentheses.

Table 6

2SLS Estimates of the Regression of Predicted Log-Hours of Foreign-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

	Non-Hispanic white	Chinese	Japanese	Asian Indian	Filipino	Korean	Southeast Asian	Pacific Islander
Intercept	7.07***	7.42***	7.20***	7.00***	7.16***	7.41***	7.23***	6.98***
	(0.009)	(0.011)	(0.066)	(0.016)	(0.009)	(0.036)	(0.015)	(0.188)
Hourly Wages								
Predicted	0.09***	0.03***	0.04***	0.15***	0.16***	0.038**	0.12***	0.145*
Log-wages	(0.004)	(0.005)	(0.021)	(0.005)	(0.003)	(0.015)	(0.006)	(0.081)
Assimilation								
Immigrant <5	-0.09***	-0.23***	-0.14***	-0.23***	-0.13***	-0.16***	-0.19***	-0.42***
years	(0.004)	(0.004)	(0.028)	(0.006)	(0.003)	(0.012)	(0.006)	(0.073)
Immigrant >	0.03***	-0.007**	0.23***	-0.083**	-0.02***	0.011	-0.02***	-0.075
10 years	(0.003)	(0.004)	(0.021)	(0.005)	(0.002)	(0.009)	(0.004)	(0.056)
English well	0.02***	0.007**	0.012	-0.009**	0.04***	-0.06***	-0.02***	-0.060
	(0.002)	(0.004)	(0.012)	(0.004)	(0.002)	(0.008)	(0.004)	(0.043)
English not	0.06***	-0.06***	0.067	0.051**	-0.17***	0.003	-0.23***	0.282
well	(0.006)	(0.006)	(0.328)	(0.022)	(0.020)	(0.023)	(0.012)	(0.221)
Family Factors								
Socioeconomic pressure	-8.25E-7***	-2.48E-7***	-3.73E-7**	-7.41E-8*	2.22E-7***	0.000	1.01E-7	-1.36E-6*
	(4.8E-8)	(3.9E-8)	(1.8E-7)	(4.3E-8)	(2.9E-8)	(0.000)	(6.6E-8)	(7.5E-7)
2 kids age < 5	-0.12***	-0.05***	-0.23***	-0.03***	-0.07***	-0.18***	-0.02***	-0.029

	(0.001)	(0.004)	(0.027)	(0.006)	(0.003)	(0.012)	(0.005)	(0.068)
2 kids age > 5	-0.04***	-0.010	0.090**	-0.1***	-0.02***	-0.06***	-0.02***	-0.185**
	(0.005)	(0.006)	(0.037)	(0.007)	(0.004)	(0.017)	(0.007)	(0.076)
More than 3	-0.07***	-0.07***	0.066	-0.2***	0.06***	-0.74***	-0.08***	-0.215**
kids age >5	(0.010)	(0.020)	(0.099)	(0.024)	(0.007)	(0.083)	(0.011)	(0.105)
Family size	0.0002	-0.01***	0.008	-0.001	3.79E-5	-0.001	0.01***	0.04***
	(0.001)	(0.001)	(0.005)	(0.001)	(5.4E-5)	(0.003)	(0.001)	(0.011)
Husbands'	0.01***	0.003	0.013	0.03***	-0.01***	-0.007*	0.0004	0.008
log-wage	(0.001)	(0.002)	(0.010)	(0.003)	(0.002)	(0.004)	(0.003)	(0.032)
Husband's	-0.001	0.009*	-0.075**	0.07***	0.008*	-0.040**	-0.011**	-0.056
High school	(0.003)	(0.005)	(0.039)	(0.010)	(0.004)	(0.016)	(0.005)	(0.054)
Some college	-0.03***	0.03***	-0.072**	0.05***	-0.05***	-0.009	-0.02***	0.078
of husband	(0.003)	(0.005)	(0.032)	(0.009)	(0.004)	(0.016)	(0.004)	(0.051)
BA of	-0.05***	0.011**	-0.099**	-0.04***	-0.06***	-0.031**	-0.03***	0.230**
husband	(0.003)	(0.005)	(0.031)	(0.009)	(0.004)	(0.015)	(0.005)	(0.109)
MA of	-0.02***	-0.03***	-0.17***	0.013	-0.02***	0.013	0.03***	-0.099
husband	(0.004)	(0.004)	(0.034)	(0.009)	(0.006)	(0.016)	(0.007)	(0.158)
Ph.D. of	-0.05***	0.002	-0.042	0.008	-0.05***	-0.022	-0.05***	0.293**
husband	(0.004)	(0.006)	(0.023)	(0.009)	(0.005)	(0.017)	(0.009)	(0.146)
Adj-R square	0.400	0.488	0.279	0.53	0.644	.20	0.399	0.24
N	10,812	7,575	1,630	3,808	6,229	3,617	4,110	229

Note: *** refers to $p < 0.001$; ** refers to $p < 0.05$; * refers to $p < 0.1$, (two-tailed test).

Note: standard errors are in parentheses.

Table 7

2SLS Estimates of the Regression of Predicted Log-Hourly Wages of Foreign-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
Intercept	2.07***	9.03***	4.27***	0.15***	6.71***	1.43***	3.61***	0.282
	(0.027)	(0.078)	(0.060)	(0.252)	(0.071)	(0.414)	0.107	(0.718)
Predicted log-hours	-0.09***	-1.02**	-0.35***	-1.03***	-0.76***	0.067	-0.24***	0.233*
	(0.004)	(0.011)	(0.008)	(0.035)	(0.011)	0.059	(0.015)	(0.126)
Human capital								
High school	0.05***	0.03***	0.12***	0.23***	0.16***	0.024*	0.06***	0.023
	(0.001)	(0.001)	(0.001)	(0.010)	(0.003)	(0.012)	(0.001)	(0.049)
Some college	0.18***	0.12***	0.22***	0.28***	0.28***	0.21***	0.20***	0.27***
	(0.001)	(0.001)	(0.002)	(0.010)	(0.003)	(0.014)	(0.001)	(0.050)
BA	0.32***	0.27***	0.40***	0.17***	0.48***	0.27***	0.44***	0.054
	(0.001)	(0.002)	(0.002)	(0.093)	(0.003)	(0.015)	(0.002)	(0.078)
MA	0.46***	0.48***	0.54***	0.23***	0.66***	0.37***	0.57***	-0.216
	(0.001)	(0.002)	(0.003)	(0.011)	(0.006)	(0.024)	(0.030)	(0.279)
Ph.D.	0.66***	0.77***	0.61***	1.08***	0.88***	1.01***	0.73***	0.144
	(0.002)	(0.002)	(0.002)	(0.013)	(0.008)	(0.031)	(0.004)	(0.279)
Age	-0.01***	-7.7E-5***	4.0E-5***	0.03***	0.02***	0.01***	-2.9E-5***	0.02
	(2.3E-5)	(4.0E-6)	(3.7E-6)	(0.000)	(0.001)	(0.000)	(5.2E-6)	(0.002)
Assimilation								
Immigrant <5	-0.04***	-0.33***	-0.22***	-0.41***	-0.1***	-0.13***	-0.22**	0.055

years	(0.001)	(0.003)	(0.002)	(0.009)	(0.004)	(0.017)	(0.033)	(0.080)
Immigrant >	0.15***	0.15***	0.15***	0.13***	0.25***	0.11***	0.09***	-0.005
10 years	(0.001)	(0.001)	(0.001)	(0.006)	(0.004)	(0.011)	(0.001)	(0.047)
English well	0.022	0.14***	0.04***	0.06***	0.06***	0.04***	0.07***	0.039
	(0.001)	(0.002)	(0.001)	(0.005)	(0.002)	(0.011)	(0.001)	(0.036)
English not	-0.19***	-0.18***	0.15***	-0.14***	-0.41***	0.14***	-0.09***	-0.482
well	(0.001)	(0.002)	(0.001)	(0.029)	(0.009)	(0.027)	(0.005)	(0.294)
Occupation								
Professional	0.53***	0.52***	0.24***	0.36***	0.42***	-0.074	0.2***	0.134
	(0.002)	(0.005)	(0.002)	(0.489)	(0.009)	(0.069)	(0.005)	(0.347)
Clerical	0.32***	0.28***	-0.04***	-0.11**	0.2***	-0.25***	0.06***	-0.339
	(0.002)	(0.004)	(0.002)	(-0.049)	(0.007)	(0.067)	(0.005)	(0.345)
Sale	0.34***	-0.05***	-0.02***	-0.28***	-0.09***	-0.18***	-0.19***	0.003
	(0.002)	(0.003)	(0.002)	(0.049)	(0.006)	(0.067)	(0.003)	(0.334)
Operator	0.22***	0.26***	-0.05***	-0.025	0.3***	-0.31***	0.06***	-0.453
	(0.003)	(0.005)	(0.003)	(0.048)	(0.010)	(0.069)	(0.005)	(0.339)
Laborer	0.14***	-0.002	-0.13***	-1.8***	0.25***	-0.36***	0.03***	-0.367
	(0.002)	(0.004)	(0.003)	(0.048)	(0.010)	(0.065)	(0.005)	(0.329)
Region								
Northeast	0.29***	0.11***	0.32***	0.29***	0.35***	0.18***	0.14***	0.14
	(0.001)	(0.002)	(0.005)	(0.021)	(0.004)	(0.024)	(0.003)	(0.106)
South	0.1***	-0.06***	-0.01***	0.11***	0.10***	-0.001	-0.06***	0.26***
	(0.001)	(0.002)	(0.003)	(0.021)	(0.003)	(0.023)	(0.002)	(0.085)
Pacific	0.25***	0.17***	0.18***	0.19***	0.30***	0.18***	0.08***	0.20***
	(0.001)	(0.002)	(0.003)	(0.021)	(0.003)	(0.023)	(0.002)	(0.064)
Midwest	0.15***	-0.02***	0.2***	0.046**	0.05***	0.07***	-0.14***	-0.057
	(0.001)	(0.003)	(0.003)	(0.021)	(0.004)	(0.025)	(0.003)	(0.106)

Adj-R square	0.993	0.994	0.992	0.90	0.988	0.58	0.990	0.51
N	10,812	7,575	6,229	3,641	1,630	3,617	4,110	229

Note: *** refers to $p < 0.001$; ** refers to $p < 0.05$; * refers to $p < 0.1$, (two-tailed test).

Note: standard errors are in parentheses.

Table 8

2SLS Estimates of the Predicted Log-Hours of Native-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
Intercept	7.03***	7.18***	7.23***	6.62***	7.19***	7.14***	7.77***	7.36***
	(0.002)	(0.046)	(0.036)	(0.341)	(0.026)	(0.366)	(0.169)	(0.044)
Hourly wages								
Predicted	0.14***	0.049**	0.11***	-0.145	0.07***	0.116	-0.28***	0.11***
Log-wages	(0.001)	(0.015)	(0.013)	(0.091)	(0.009)	(0.088)	(0.056)	(0.019)
Economic	6.E-8***	1.74E-7*	2.1E-7**	-3.E-6**	2.1E-7**	2.05E-6	1.16E-6	-2.E-
condition	(9.62E-9)	(9.56E-8)	(1.05E-7)	(7.77E-7)	(6.45E-8)	(1.27E-6)	(8.42E-7)	6*** (1.7-7)
# of kids	-0.19***	-0.15***	-0.13***	-0.63	-0.07***	-0.239**	-0.45***	-0.1***
age < 5	(0.001)	(0.009)	(0.007)	(0.123)	(0.006)	(0.079)	(0.054)	(0.01)
<2 kids	-0.06***	-0.06***	-0.1***	0.4***	-0.03***	-0.36***	0.014	-0.05***
age over 5	(0.001)	(0.007)	(0.006)	(0.082)	(0.004)	(0.061)	(0.047)	(0.08)
>3 kids age	-0.21***	-0.27***	0.15***	1.164	-0.19***	-0.101	-0.253**	-0.08***
over 5	(0.003)	(0.015)	(0.01)	(0.123)	(0.008)	(0.136)	(0.077)	(0.012)
Family size	-0.001**	-0.008**	-0.002	0.113**	-0.01***	0.03	0.013	-0.02***
	(0.0002)	(0.003)	(0.002)	(0.029)	(0.002)	(0.025)	(0.018)	(0.002)
Husband	-0.02***	0.026**	-0.014**	0.138**	-0.003	0.046	-0.057*	-0.05***
log-wage	(0.0003)	(0.007)	(0.006)	(0.056)	(0.004)	(0.067)	(0.03)	(0.008)
Husband's	-0.03***	0.12***	-0.06***	-0.003	0.13***	-0.075	0.24***	-0.022
High school	(0.001)	(0.022)	(0.012)	(0.174)	(0.010)	(0.294)	(0.067)	(0.013)

Husband some college	-0.03*** (0.0008)	0.12*** (0.021)	-0.038** (0.011)	0.243 (0.179)	0.09*** (0.011)	-0.196 (0.287)	0.36*** (0.071)	-0.06*** (0.014)
BA of husband	-0.01*** (0.001)	0.058** (0.021)	-0.029** (0.013)	0.73*** (0.179)	0.11*** (0.107)	-0.112 (0.288)	0.47*** (0.080)	-0.051** (0.018)
MA of husband	-0.001 (0.001)	0.012 (0.022)	0.08*** (0.02)	0.603** (0.183)	0.025** (0.012)	-0.394 (0.301)	0.209* (0.109)	-0.083** (0.029)
Ph.D. of husband	-0.04*** (0.001)	0.069** (0.022)	0.012 (0.021)	-0.061 (0.186)	0.09*** (0.013)	-0.341 (0.303)	0.57*** (0.129)	-0.269** (0.039)
Adj-R square	0.496	0.340	0.487	0.588	0.30	0.345	0.524	0.231
N	1 87,734	1,410	989	71	3,217	98	133	1,168

Note: *** refers to $p < 0.001$; ** refers to $p < 0.05$; * refers to $p < 0.1$, (two-tailed test).

Note: standard errors are in parentheses.

Table 9

2SLS Estimates of the Predicted Log-Wages of Native-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
Intercept	1.42***	6.56***	-1.11***	2.42***	6.71***	4.93***	4.65***	-1.30***
	(0.006)	(0.135)	(0.199)	(0.565)	(0.071)	(0.428)	(0.532)	(0.204)
Predicted log-hours	-0.02***	-0.62***	0.46***	-0.100	-0.76***	-0.46***	-0.34***	0.44***
	(0.001)	(0.017)	(0.027)	(0.074)	(0.011)	(0.067)	(0.066)	(0.029)
Human capital								
High school	0.08***	0.11***	0.21***	-0.012	0.16***	0.162*	0.103	0.15***
	(0.0003)	(0.012)	(0.009)	(0.174)	(0.003)	(0.095)	(0.070)	(0.007)
Some college	0.21***	0.25***	0.31***	0.499**	0.28***	0.34***	0.21**	0.29***
	(0.0003)	(0.011)	(0.009)	(0.167)	(0.003)	(0.097)	(0.066)	(0.007)
BA	0.41***	0.46***	0.49***	0.320*	0.48***	0.75***	-0.139*	0.32***
	(0.003)	(0.011)	(0.011)	(0.164)	(0.003)	(0.096)	(0.080)	(0.012)
MA	0.63***	0.59***	0.53***	0.406**	0.66***	0.85***	0.77***	0.57***
	(0.004)	(0.012)	(0.017)	(0.195)	(0.006)	(0.112)	(0.107)	(0.016)
Ph.D.	0.71***	0.9***	0.25***	1.29***	0.88***	0.82***	0.040	0.08***
	(0.001)	(0.014)	(0.023)	(0.201)	(0.008)	(0.109)	(0.160)	(0.022)
Occupation								
Profession	0.75***	0.15***	-0.15***	0.36***	0.42***	0.113**	0.055	-0.08***
	(0.001)	(0.007)	(0.011)	(0.097)	(0.009)	(0.054)	(0.055)	(0.023)
Clerical	0.59***	-0.006	-0.31***	0.0146	0.2***	0.106	-0.46***	-0.37***
	(0.0009)	(0.006)	(0.012)	(0.107)	(0.007)	(0.066)	(0.066)	(0.016)

Sale	0.59***	-0.21***	-0.33***	-0.227	-0.09***	-0.145*	-0.55***	-0.472
	(0.0008)	(0.009)	(0.011)	(0.212)	(0.006)	(0.067)	(0.084)	(0.013)
Operator	0.55***	-0.035**	-0.34***	-0.480**	0.3***	0.84***	-0.259**	-0.046**
	(0.0009)	(0.015)	(0.019)	(0.222)	(0.010)	(0.180)	(0.102)	(0.021)
Laborer	0.30***	-0.22***	-0.32***	-0.121	0.25***	0.066	-0.125	-0.22***
	(0.0008)	(0.012)	(0.016)	(0.195)	(0.010)	(0.102)	(0.092)	(0.014)
Region								
Northeast	0.19***	0.30***	0.017	0.69***	0.35***	0.64***	0.103	0.38***
	(0.0003)	(0.010)	(0.020)	(0.174)	(0.004)	(0.181)	(0.084)	(0.016)
South	0.03***	0.08***	-0.12***	0.372**	0.10***	0.002	-0.34***	0.005
	(0.0003)	(0.011)	(0.197)	(0.168)	(0.003)	(0.174)	(0.090)	(0.013)
Pacific	0.2***	0.335**	0.08***	0.575**	0.30***	0.365**	0.038	0.28***
	(0.0003)	(0.009)	(0.016)	(0.170)	(0.003)	(0.177)	(0.080)	(0.011)
Midwest	0.03***	0.2***	-0.21***	0.225	0.05***	0.070	-0.19**	0.16***
	(0.0003)	(0.012)	(0.019)	(0.183)	(0.004)	(0.175)	(0.088)	(0.015)
Adj-R square	0.990	0.945	0.902	0.51	0.988	0.861	0.81	0.913
N	187,734	1,410	989	71	1,630	98	133	1,168

Note: *** refers to $p < 0.001$; ** refers to $p < 0.05$; * refers to $p < 0.1$, (two-tailed test).

Note: standard errors are in parentheses.

Table 10

Net Effects of OLS Estimates of Educational Levels on Log-Hourly-Wages of Foreign-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variables	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
High school	4.8%	5.2%	12%	16%	11%	6.3%	6.2%	3.6%
Some college	19%	20%	23%	21%	23%	26%	22%	13%
BA	37%	45%	48%	21%	54%	37%	55%	15%
MA	56%	75%	70%	47%	50%	44%	57%	24%
Ph.D.	94%	112%	84%	270%	85%	163%	107%	25%

Note: The net effects of educational levels are computed by taking the exponential of the slop coefficients of education subtracting from 1.

Table 11

2SLS Estimates of the Net Effects of Educational Levels of Foreign-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variables	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
High school	5%	3%	12%	19%	17%	4%	6%	17
Some college	19%	13%	24%	28%	32%	26%	22%	29
BA	38%	27%	50%	20%	62%	37%	55%	32
MA	58%	62%	72%	42%	93%	56%	77%	57
Ph.D.	94%	115%	85%	213%	140%	164%	107%	8.2

Table 12

Net Effects of OLS Estimates of Educational Levels on Log-Hourly Wages of Native-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variables	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
High school	9%	9%	28%	-27%	-0.4%	34%	5%	18%
Some college	23%	24%	42%	-20%	6%	75%	32%	37%
BA	48%	55%	81%	9%	26%	151%	-12%	59%
MA	86%	69%	97%	6%	48%	164%	120%	104%
Ph.D.	105%	115%	47%	99%	64%	175%	10%	26%

Table 13

2SLS Estimates of the Net Effects of Educational Levels of Native-Born Asian American and Non-Hispanic White Wives (1990 PUMS, Weighted)

Variables	Non-Hispanic white	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
High school	8.5%	12%	23%	-1.1%	17%	18%	11%	17%
Some college	23%	28%	36%	65%	32%	41%	24%	34%
BA	51%	58%	63%	38%	62%	112%	-13%	38%
MA	88%	80%	70%	51%	93%	134%	116%	77%
Ph.D.	103%	146%	28%	263%	141%	127%	4.1%	8.3%

Table 14

T-Tests for the Difference in the Amount of Employment and Educational Levels between Foreign-Born Asian American and Native-Born Non-Hispanic White Wives

	Chinese	Filipino	Asian Indian	Japanese	Korean	Southeast Asian	Pacific Islander
Hours worked	-78.203	-29.069	-26.683	-57.242	2.655	-9.662	2.562
Hourly wages	-21.572	-2.499	1.996	6.325	-6.785	-3.288	0.062
Educational levels							
High school	-14.142	49.498	17.911	34.785	-2.159	7.071	-0.551
Some college	-42.426	17.889	9.950	31.623	2.137	14.142	1.80
BA	-22.360	-35.777	-1.613	50.596	3.326	53.666	-3.410
MA	8.944	25.298	-20.823	32.880	-3.747	122.087	-8.684
Ph.D.	38.891	-17.678	31.932	26.679	11.267	15.652	-1.849

The formula for the *t*-tests is $t = \frac{b_{Asian} - b_{White}}{\sqrt{(SE_{Asian})^2 + (SE_{White})^2}}$, where b_{Asian} is the unstandardized slope coefficient for each foreign-born Asian group, while b_{White} is the unstandardized slope coefficient for native-born non-Hispanic white wives. $S.E._{Asian}$ is the standard error for each Asian group, while $S.E._{White}$ is standard error for native-born non-Hispanic white wives.

Table 15

T-Tests for the Difference in Amount of Employment and Educational Levels between Native-Born Asian American and Native-Born Non-Hispanic White Wives

	Chinese	Filipino	Asian Indian	Japanese	Korean	South-east Asian	Pacific Islander
Hours worked	-35.233	17.766	-1.081	-66.996	-6.566	-4.848	15.853
Hourly wages	6.053	-2.301	-3.132	-7.73	-0.273	-7.499	-1.577
Educational levels							
High school	2.425	13.703	-0.529	18.856	0.863	1.142	9.191
Some college	3.508	10.541	1.730	6.139	1.34	0.151	1.211
BA	4.385	7.016	-0.549	6.139	3.540	-6.858	-7.276
MA	-3.162	-5.726	-1.148	4.160	1.963	1.307	-3.638
Ph.D.	13.537	-19.981	2.886	21.086	1.009	-4.187	-28.607

The formula for the *t*-tests is $t = \frac{b_{White} - b_{Asian}}{\sqrt{(SE_{White})^2 + (SE_{Asian})^2}}$, where b_{Asian} is the unstandardized slope coefficient for each native-born Asian group, while b_{White} is the unstandardized slope coefficient for native-born non-Hispanic white wives. $S.E._{Asian}$ is the standard error for each Asian group, while $S.E._{White}$ is standard error for native-born non-Hispanic white wives.

Figure 1
Unidirectional Causal Mechanism of Income Attainment of Foreign-Born Asian American and Non-Hispanic White Wives

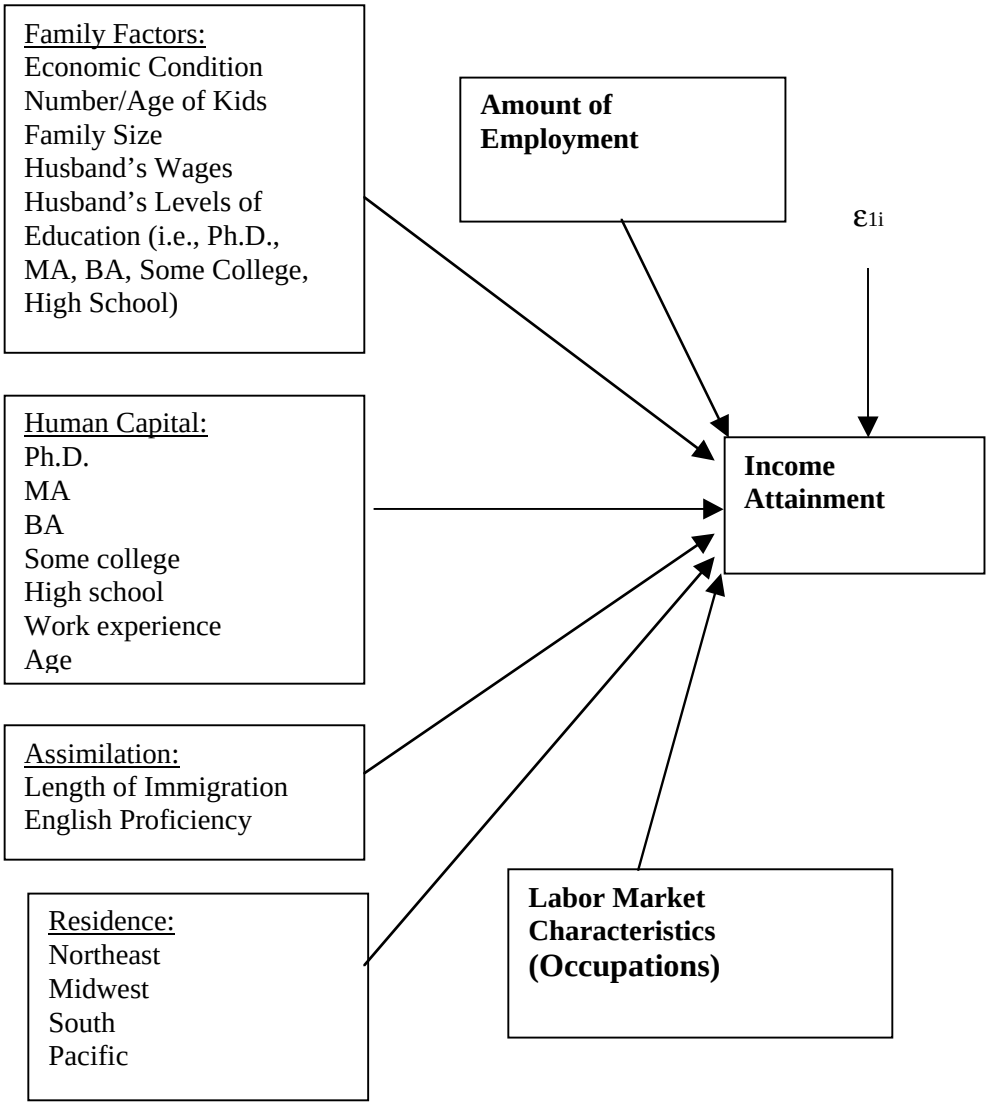


Figure 2
Two Separate Unidirectional Models of Socioeconomic Attainment of Foreign-Born Asian American and Non-Hispanic White Wives

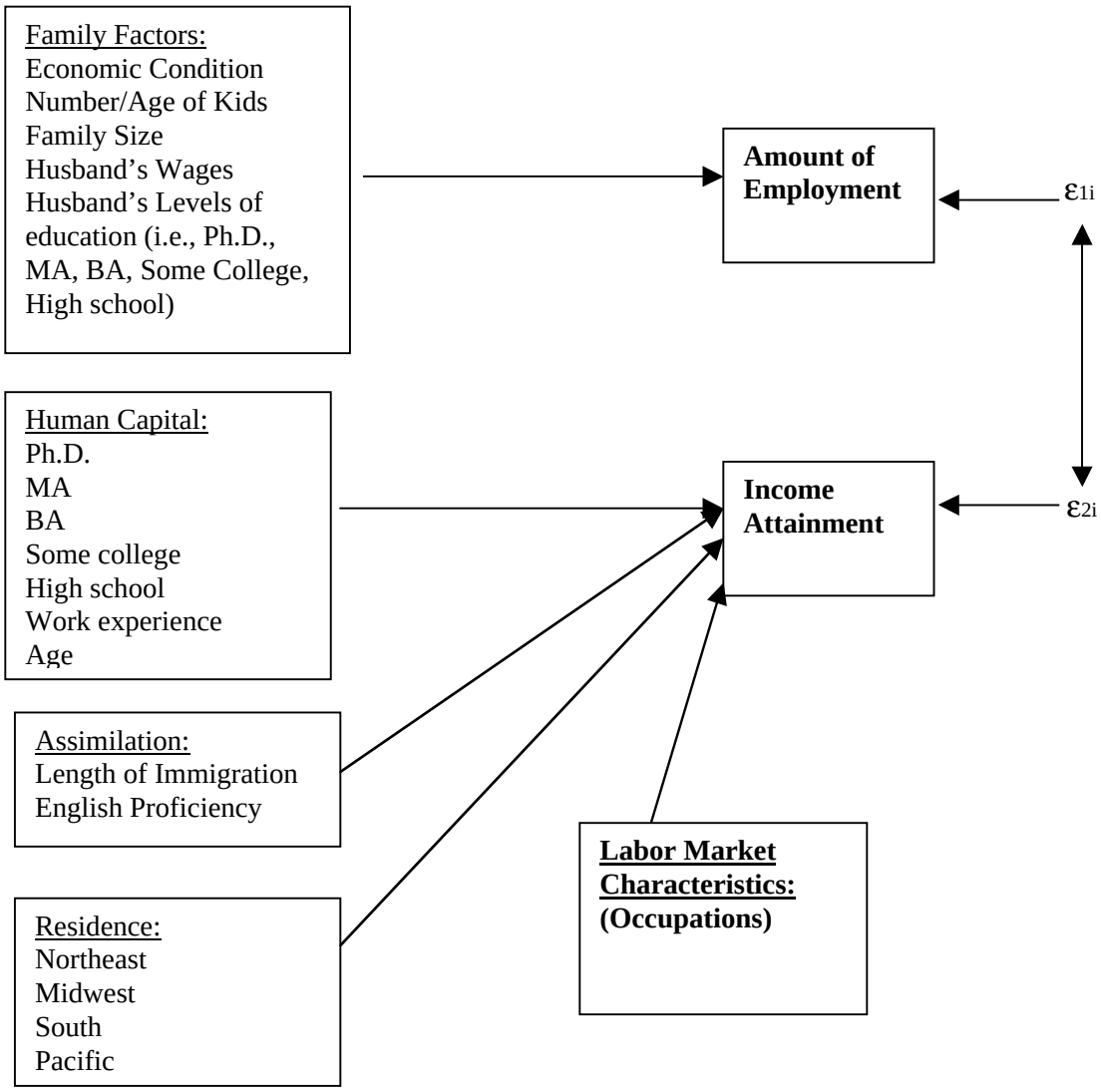


Figure 3
A Path Model of Socioeconomic Attainment of Foreign-Born Asian American and Non-Hispanic White Wives

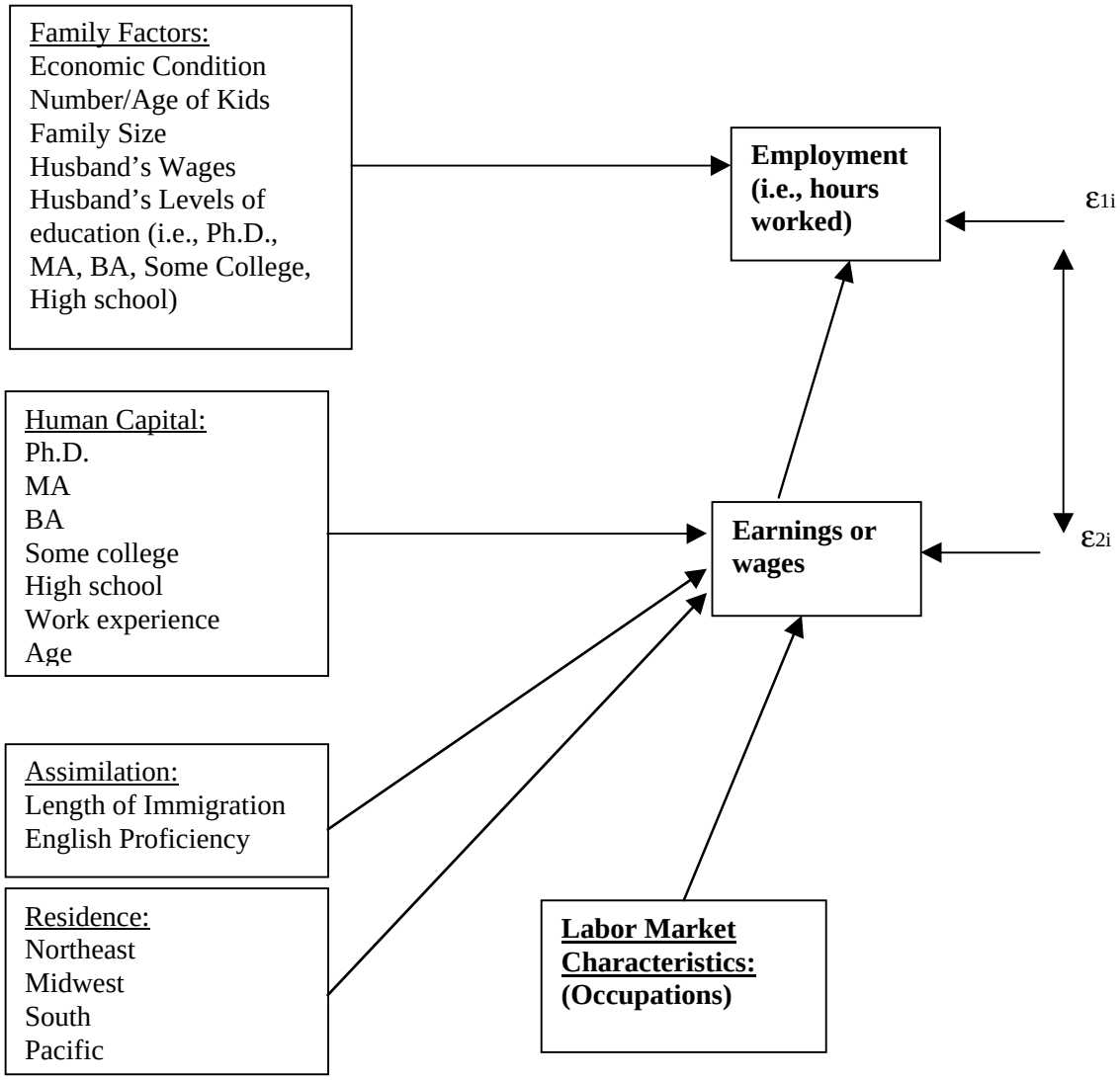
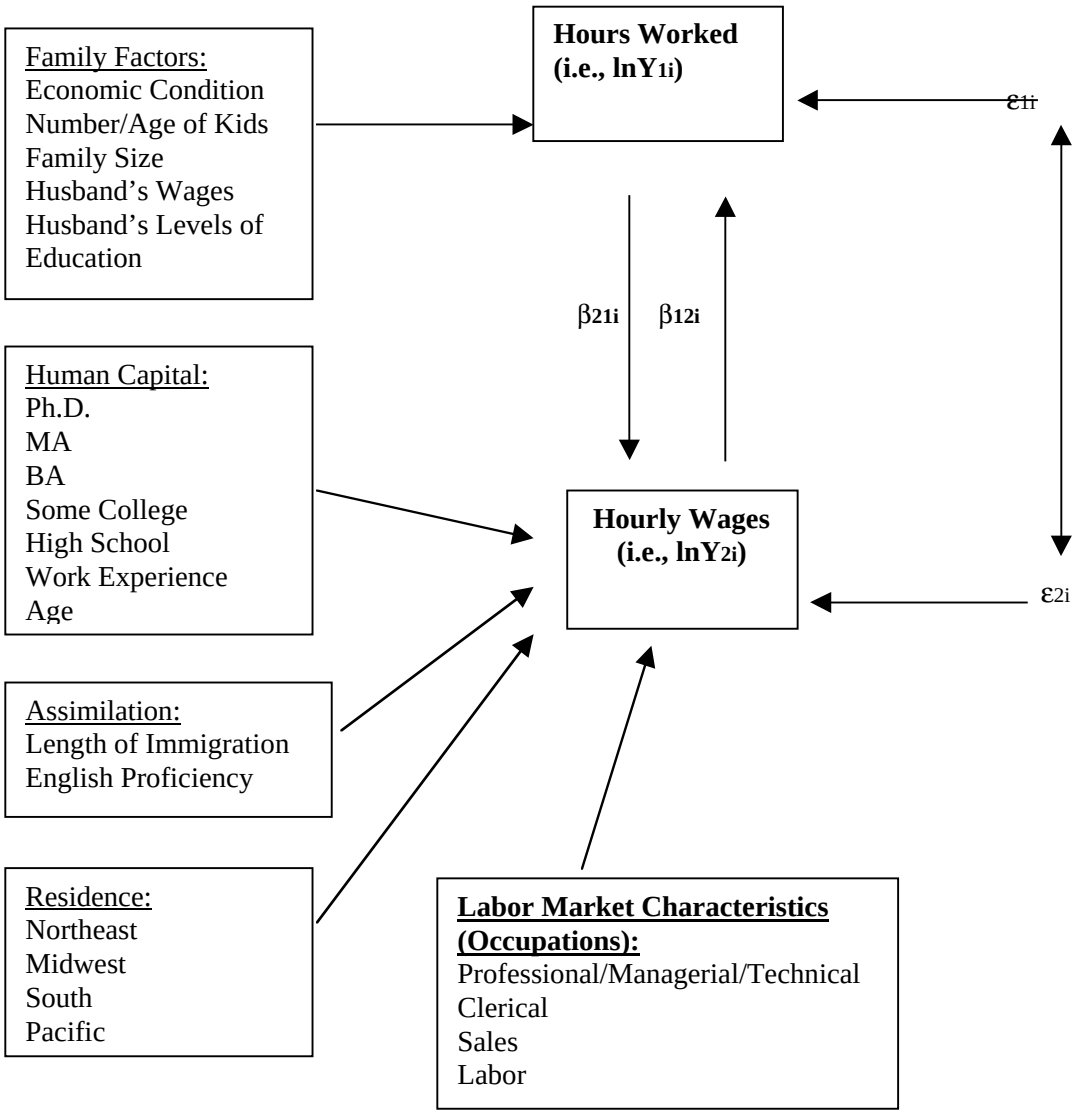


Figure 4
A Reciprocal Causal Mechanism of Hours Worked and Hourly Wages of Foreign-Born Asian American and Non-Hispanic White Wives



Appendix I

Descriptions of Variables

Variables	Measurement of Variables	Theoretical Implications and Assumptions
Hours Worked	The total hours employed in 1989.	
Log-Hours	The natural logarithm of hours employed in 1989.	Differences in Asian American and non-Hispanic women's hours worked depend mainly on differentials in family factors.
Hourly Wages	The total personal earnings are divided by the total hours (i.e., hours worked per week multiplying weeks (worked in 1989).	
Log-Wages	The natural logarithm of hourly wages.	Variations in log of hourly wages between Asian American and non-Hispanic women depend on human capital, log-hours worked and some demographic variables.
Labor Market Characteristic		
Occupation	Five dummy variables indicate different occupations: 1. Professional/technical/managerial (0, 1) 2. Clerical workers (0, 1) 3. Sales workers (0, 1) 4. Operator (0, 1) 5. Laborer (0, 1)	1. The relationship between occupation and hourly wages is non-linear. 2. Variations in occupations are assumed to lead to variations in wages among immigrant groups. For example, working as a professional/technician/manager is positively related to wage, while working as an operator or laborer is negatively related to hourly wages.

Family Factors		
Economic Condition	Total family income subtracts from the personal earned income of Asian women and that of their husbands.	Economic condition in a family is negatively related to women's hourly wages across groups.
Number and Age of Children	Children under age 5 (0, 1), having less than two children over age 5 (0, 1), more than two children over age 5 (0, 1)	The presence of children negatively relates to women's hours worked in the labor market.
Hourly Wages of Husbands	Hourly wage rate (total annual earnings last year divided by total hours worked).	
Log-Wages of Husbands	The natural logarithm of husbands' hourly wages	Husband's wages may lead to variations in wives' decision on the amount of employment in the labor market.
Educational Levels of Husbands	Coded as five dummy variables: Ph.D., MA, BA, Some college, High school (0, 1), while less than 12 year of schooling is the reference group.	Husband's educational levels may result in wage differences between Asian American wives and non-Hispanic wives.
Family Size	The total number of members who live in a family.	Different family size might result in variations in women' decision on the amount of employment she is willing to work in the labor market.
Assimilation		
English Proficiency	Coded as two dummy variable included in the regression models for immigrant wives:	The ability of speaking English well is positively linked to income attainment across groups; while not being able to speak

	1. English speaking well (0, 1) 2. English speaking poorly (0, 1)	English well is negatively related to income attainment of Asian women, especially for immigrant women.
Length of Immigration	Coded as two dummy variables: Immigrated to the U.S. for more than 10 years, immigrated to U.S. for less than 4 years (0, 1)	Immigrated to the U.S. for more than 10 years positively link to income attainment and hours worked of immigrant Asian women; while less than 4 years negatively relates to income attainment and hours worked of immigrant Asian women.
Residence	Coded as four dummy variables: Northeast, South, Pacific, Midwest (0, 1)	Different regions are presumed to have a different effect on hourly wages across all groups.

Appendix II

1990 PUMS Questions in Actual Forms

OFFICIAL 1990 U.S. CENSUS FORM

Thank you for taking time to complete and return this census questionnaire. It's important to you, your community, and the Nation.

The law requires answers but guarantees privacy.

By law (Title 13, U.S. Code), you're required to answer the census questions to the best of your knowledge. However, the same law guarantees that your census form remains confidential. For 72 years -- or until the year 2062 -- only Census Bureau employees can see your form. No one else -- no other government body, no police department, no court system or welfare agency -- is permitted to see this confidential information under any circumstances.

How to get started -- and get help.

Start by listing on the next page the names of all the people who live in your home. Please answer **all** questions with a black lead pencil. You'll find detailed instructions for answering the census in the enclosed guide. If you need additional help, call the toll-free telephone number to the left, near your address.

Please answer and return your form promptly.

Complete your form and return it by April 1, 1990 in the postage-paid envelope provided. Avoid the inconvenience of having a census taker visit your home.

Again, thank you for answering the 1990 Census.

Remember: Return the completed form by April 1, 1990.

How to Fill Out Your Census Form

Please us a black lead pencil only. Black lead pencil is better to use than ballpoint or other pens. Most questions ask you to fill in the circle, or to print the information. **See Example** below [omitted].

Make sure you print answers for everyone in this household. If someone in the household, such as a roomer or boarder, does not want to give you all the information for the form, print at least the person's name and answer question 2 and 3. A census taker will call to get the other information directly from the person.

There may be a question you cannot answer exactly. For example, you might not know the age of an elderly person or the price for which your house would sell. Ask someone else in your household; if no one knows, give your best estimate.

Instructions for individual questions begin on page 3 of this guide [this refers to the separate instruction section preceeding the questionnaire]. They will help you to understand the questions and answer them correctly.

If you have a question about filling out the census form or need assistance, call the local U.S. census office. **The telephone number is given on the cover of the questionnaire** [omitted]**.**

If you do not mail back your census form, a census taker will be sent out to assist you. But it saves time and your taxpayer dollars if you fill out the form yourself and mail it back.

Your Answers Are Confidential

The law authorizing the census (Title 13, U.S. Code) also provides that your answers are confidential. No one except census workers may see your completed form and they can be fined and/or imprisoned for any disclosure of your answers. Only after 72 years can your individual census form become available to other government agencies (whether federal, state, county, or local). Until then, no other person or business can see your individual report.

The same law that protects the confidentiality of your answers requires that you provide the information asked in this census to the best of your knowledge.

Information collected from the decennial census is used for a variety of statistical purposes. Census information is used to find out where funding is most needed for schools, health centers, highways, and

other services. Census results are used by members of public and private groups—including community organizations—and by businesses and industries, as well as by agencies at all levels of government.

1990 Population questions

The 1990 census must count every person at his or her "usual residence." This means the place where the person lives and sleeps most of the time.

1a. List on the numbered lines below the name of each person living here on Sunday, April 1, including all persons staying here who have no other home. If EVERYONE at this address is staying here temporarily and usually lives somewhere else, follow the instructions given in question 1b below.

Include

Everyone who usually lives here such as family members, housemates and roommates, foster children, roomers, boarders, and live-in employees

Persons who are temporarily away on a business trip, on vacation, or in a general hospital

College students who stay here while attending college

Persons in the Armed Forces who live here

Newborn babies still in the hospital

Children in boarding schools below the college level

Persons who stay here most of the week while working even if they have a home somewhere else

Persons with no other home who are staying here on April 1

Do NOT include

Persons who usually live somewhere else

Persons who are away in an institution such as a prison, mental hospital, or a nursing home

College students who live somewhere else while attending college

Persons in the Armed Forces who live somewhere else

Persons who stay somewhere else most of the week while working

Print last name, first name, and middle initial for each person. Begin on line 1 with the household member (or one of the household members) in whose name this house or apartment is owned, being bought, or rented [the head of household]. If there is no such person, start on line 1 with any adult household member.

LAST FIRST INITIAL

1. _____.
2. _____.
3. _____.
4. _____.
5. _____.
6. _____.
7. _____.
8. _____.
9. _____.
10. _____.
11. _____.

12._____.

"List everyone who lives at this address in question 1a. If you are not sure if you should list a person, see the rules on page 1 of the census form. If you are still not sure, answer as best you can and fill in "Yes" for question H1a or H1b, as appropriate. If there are more than seven people in your household, please list all the persons in question 1a, complete the form for seven people, and mail it back in the enclosed envelope. A census taker will call to obtain the information for the additional persons."

1b. If EVERYONE is staying here only temporarily and usually lives somewhere else, list the name of each

person on the numbered lines above, fill this circle Æ O and print their usual address below. DO NOT PRINT THE ADDRESS LISTED ON THE FRONT COVER.

House number Street or road/Rural route and box number Apartment number City

State ZIP Code

_____

Country or foreign country Names of nearest intersecting streets or roads

"If everyone listed in questions 1a usually lives at another address(es), print the address(es) in 1b."

[The form provides a column for each person within the household to answer each of the following person questions.]

2. How is this person related to PERSON 1 [the head of household]?

Fill ONE circle for each person. If **Other relative** of person in column 1, fill circle and print exact relationship, such as mother-in-law, grandparent, son-in-law, niece, cousin, and so on.

[Person 1 was not to answer this question.]

If a RELATIVE of Person 1:

O Husband/wife

O Natural-born or adopted son/daughter

O Stepson/stepdaughter

O Brother/sister

O Father/mother

O Grandchild

O Other relative:

_____

If NOT RELATED to Person 1:

O Roomer, boarder, or foster child

O Housemate, roommate

O Unmarried partner

O Other nonrelative

"Fill one circle to show how each person is related to the person in column 1. If **Other relative** of the person in column 1, print the exact relationship such as son-in-law, daughter-in-law, grandparent, nephew, niece, mother-in-law, father-in-law, cousin, and so on. If the **Stepson/stepdaughter** of the person in column 1 also has been legally adopted by the person in column 1, mark **Stepson/stepdaughter** but do not mark **Natural-born or adopted son/daughter**. In other words, **Stepson/stepdaughter** takes precedence over **Adopted son/daughter**."

3. Sex

Fill ONE circle for each person.

O Male

O Female

4. Race

Fill ONE circle for the race that the person considers himself/herself to be.

If Indian (Amer.), print the name of the enrolled or principal tribe.

If Other Asian or Pacific Islander (API), print one group, for example:

Hmong, Fijian, Laotian, Thai, Tongan, Pakistani, Cambodian, and so on.

If Other race, print race.

O White

O Black or Negro

O Indian (Amer.) (Print the name of the enrolled or principal tribe.) _____

O Eskimo

O Aleut

Asian or Pacific Islander (API)

O Chinese O Japanese

O Filipino O Asian Indian

O Hawaiian O Samoan

O Korean O Guamanian

O Vietnamese O Other API Ø

_____

O Other race (Print race)

"Fill ONE circle for the race each person considers himself/herself to be. If you fill the **Indian (Amer.)** circle, print the name of the tribe or tribes in which the person is enrolled. If the person is not enrolled in a tribe, print the name of the principal tribe(s). If you fill the **Other API** circle [under **Asian or Pacific Islander (API)**], **only** print the name of the group to which the person belongs. For example, the **Other API** category includes persons who identify as Burmese, Fijian, Hmong, Indonesian, Laotian, Bangladeshi, Pakistani, Tongan, Thai, Cambodian, Sri Lankan, and so on. If you fill the **Other race** circle, be sure

to print the name of the race. If the person considers himself/herself to be **White, Black or Negro, Eskimo or Aleut, fill one circle only. Please do not print the race in the boxes.** The **Black or Negro** category also includes persons who identify as African-American, Afro-American, Haitian, Jamaican, West Indian, Nigerian, and so on. **All** persons, regardless of citizenship status, should answer this question."

5. Age and year of birth

a. Print each person's age at last birthday. Fill in the matching circle below each box.

b. Print each person's year of birth and fill the matching circle below each box.

a. Age b. Year of birth

___ ___ ___ 1 ___ ___ ___

0 O 0 O 0 O 1 l 8 O 0 O 0 O

1 O 1 O 1 O 9 O 1 O 1 O

2 O 2 O 2 O 2 O

3 O 3 O 3 O 3 O

4 O 4 O 4 O 4 O

5 O 5 O 5 O 5 O

6 O 6 O 6 O 6 O

7 O 7 O 7 O 7 O

8 O 8 O 8 O 8 O

9 O 9 O 9 O 9 O

"Print age at last birthday in the space provided (print "00" for babies less than 1 year old). Fill in the matching circle below each box. For an illustration of how to complete question 5, see the **Example** on page 2 of this guide [omitted]."

6. Marital status

Fill ONE circle for each person.

O Now married O Separated

O Widowed O Never married

O Divorced

"If the person's only marriage was annulled, mark **Never married**."

7. Is this person of Spanish/Hispanic origin?

Fill ONE circle for each person.

If **Yes, other Spanish/Hispanic**, print one group.

O No (not Spanish/Hispanic)

O Yes, Mexican, Mexican-Am., Chicano

O Yes, Puerto Rican

O Yes, Cuban

O Yes, other Spanish/Hispanic

(Print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard,

and so on.)

_____

"A person is of Spanish/Hispanic origin if the person's origin (ancestry) is Mexican, Mexican-Am., Chicano, Puerto Rican, Cuban, Argentinean, Colombian, Costa Rican, Dominican, Ecuadoran, Guatemalan, Honduran, Nicaraguan, Peruvian, Salvadoran, from other Spanish-speaking countries of the Caribbean or Central or South America, or from Spain. If you fill the **Yes, other Spanish/Hispanic** circle, print one group. A person who is not of Spanish/Hispanic origin should answer this question by filling the **No (not Spanish/Hispanic)** circle. Note that the term **"Mexican-Am."** refers only to persons of Mexican origin or ancestry. All persons, regardless of citizenship status, should answer this question."

8. In what U.S. State or foreign country was this person born?

_____

(Name of State or foreign country; or Puerto Rico, Guam, etc.)

"*For persons born in the United States:*

Print the name of the State in which this person was born. If the person was born in Washington, D.C., print District of Columbia. If the person was born in a U.S. territory or commonwealth, print Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, or

Northern Marianas.

"*For persons born outside the United States:*

Print the name of the foreign country or area where the person was born. Use current boundaries, not boundaries at the time of the person's birth. Specify whether Northern Ireland or the Republic of Ireland (Eire); East or West Germany; North or South Korea; England, Scotland, or Wales (not Great Britain or United Kingdom). Specify the particular country or island in the Caribbean (not, for example, West Indies)."

10. When did this person come to the United States to stay?

O 1987 to 1990 O 1970 to 1974

O 1985 or 1986 O 1965 to 1969

O 1982 to 1984 O 1960 to 1964

O 1980 or 1981 O 1950 to 1959

O 1975 to 1979 O Before 1950

"If the person has entered the United States (that is, the 50 states and the District of Columbia) more than once, fill the circle for the latest year he/she came to stay."

12. How much school has this person COMPLETED?

Fill ONE circle for the highest level COMPLETED or degree RECEIVED. If currently enrolled, mark the level of previous grade attended or highest degree received.

O No school completed

O Nursery school

O Kindergarten

O 1st, 2nd, 3rd, or 4th grade

O 5th, 6th, 7th, or 8th grade

O 9th grade

O 10th grade

O 11th grade

O 12th grade, NO DIPLOMA

O HIGH SCHOOL GRADUATE -- high school DIPLOMA or the equivalent (For example: GED)

O Some college but no degree

O Associate degree in college -- Occupational program

O Associate degree in college -- Academic program

O Bachelor's degree (For example: BA, AB, BS)

O Master's degree (For example: MA, MS, MEng, MEd, MSW, MBA)

O Professional school degree (For example: MD, DDS, DVM, LLB, JD)

O Doctorate degree (For example: PhD, EdD)

"Mark the category for the highest grade or level of schooling the person has **successfully**

completed or the **highest degree** the person received. If the person is enrolled in school, mark the category containing the highest grade completed (the grade previous to the grade in which enrolled). Schooling completed in foreign or ungraded schools should be reported as the equivalent level of schooling in the regular American school system. Persons who completed high school by passing an equivalency test, such as the General Education Development (GED) examination, and did not attend college, should fill the circle for high school graduate. Do not include vocational certificates or diplomas from vocational, trade, or business schools or colleges unless they were college level associate degrees or higher. Some examples of *professional school degrees* include medicine, dentistry, chiropractic, optometry, osteopathic medicine, pharmacy, podiatry, veterinary medicine, law, and theology. Do not include barber school, cosmetology, or other training for a specific trade. Do not include honorary degrees awarded by colleges and universities to individuals for their accomplishments. Include only "earned" degrees."

(1) Name of U.S. State or foreign country

_____

(If outside U.S., print answer above and skip to 15a.)

"If the person lived in the United States on April 1, 1985, print the name of the State (or District of Columbia) where he or she lived. Continue with parts (2) through (4). If the person lived in a U.S. territory or commonwealth, print the name of the territory or commonwealth, such as Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, or Northern Marianas. Then go to question 15a. If the person lived outside the United States, print the name of the foreign country or area where he or she lived. Specify whether Northern Ireland or the Republic of Ireland (Eire); East or West Germany; North or South Korea; England, Scotland or Wales (not Great Britain or United Kingdom). Specify the particular country or island in the Caribbean (not, for example, West Indies). Then go to

question 15a."

c. How well does this person speak English?

O Very well O Not well

O Well O Not at all

16. When was this person born?

O Born before April 1, 1975 -- *Go to 17a*

O Born April 1, 1975 or later -- *Go to questions for the next person*

20. *If this person is a female* --

How many babies has she ever had, not counting still births?

Do not count her stepchildren or children she has adopted.

None 1 2 3 4 5 6 7 8 9 10 11 12 or more

O O O O O O O O O O O O O

"Count all children born alive, including any who have died (even shortly after birth) or who no longer live with you. Do not include miscarriages or stillborn children or any adopted, foster, or stepchildren."

21a. Did this person work at any time LAST WEEK?

O Yes -- Fill this circle if this person worked full time or part time. (Count as part-time work such as delivering papers, or helping without pay in a family business or farm. Also count active duty in the Armed Forces.)

O No -- Fill this circle if this person did not work, or did only own housework, school work, or volunteer work. -- *Skip to 25.*

"*Count as work - Mark* **Yes***:*

- Work for someone else for wages, salary, piece rate, commission, tips, or payments "in kind" (for example, food, lodging received as payment for work performed).

- Work in own business, professional practice, or farm.

- Any work in a family business or farm, paid or not.

- Any part-time work including babysitting, paper routes, etc.

- Active duty in Armed Forces.

"*Do not count as work - Mark* **No:**

- Housework or yard work at home.

- Unpaid volunteer work.

- School work.

- Work done as a resident of an institution."

29. Occupation

a. What kind of work was this person doing?

_____

(For example: registered nurse, personnel manager, supervisor of order department, gasoline engine assembler, cake icer)

"Print two or more words to describe the kind of work the person did. If the person was a trainee, apprentice, or helper, include that in the description. Some examples of what to enter:

Enter a description like the following - Do not enter -

Production clerk Clerk

Carpenter's helper Helper

Auto engine mechanic Mechanic

Registered nurse Nurse"

b. What were this person's most important activities or duties?

_____

(For example: patient care, directing hiring policies, supervising order clerks, assembling engines, icing cakes)

31a. Last year (1989), did this person work, even for a few days, at a paid job or in a business or farm?

O Yes O No -- *Skip to 32*

"Look at the instructions for question 21a to see what to count as work."

b. How many weeks did this person work in 1989?

Count paid vacation, paid sick leave, and military service. _____ Weeks

"Count every week in which the person did any work at all, even for an hour."

c. During the weeks WORKED in 1989, how many hours did this person usually work each week?

_____ Hours

32. INCOME IN 1989 --

Fill the "Yes" circle below for each income source received during 1989. Otherwise, fill the "No" circle. If "Yes," enter the total amount received during 1989. For income received jointly, see instruction guide. If exact amount is not known, please give best estimate. If net income was a loss, write "Loss" above the dollar amount.

"Fill the **Yes** or **No** circle for each part and enter the amount received during 1989. If income from any source was received jointly by household members, report, if possible, the appropriate share for each person; otherwise, report the whole amount for only one person and fill the **No** circle for the other person."

a. Wages, salary, commissions, bonuses, or tips from all jobs -- Report amount before deductions for taxes, bonds, dues, or other items.

O Yes Æ

O No $_____ .00

Annual amount -- Dollars

"Include wages and salaries from *all* jobs *before* deductions. Be sure to include any tips, commissions, or bonuses. Owners of *incorporated* businesses should enter their salary here. Military personnel should include base pay plus cash housing and/or subsistence allowance, flight pay, uniform allotments, reenlistment bonuses, etc."

33. What was this person's total income in 1989?

Add entries in questions 32a through 32h; subtract any losses. If total amount was a loss, write "Loss" above amount.

O None OR $_____ .00

Annual amount -- Dollars

Source: 1990 Public Use Microdata Samples Documentation, Volume III: Counting the Past, Part I. Creating the Census, 1990 Enumeration Form: 1990 Census Questions and Instructions , U.S. Bureau of Census.

Appendix III

1990 Race Category Composition of Immigrant Non-Hispanic White Wives

This is a full list of the 1990 write-in responses contained in each category for the IPUMS variable RACE (Race). All responses listed below under a particular IPUMS code (in bold) received a common value in the 1990 samples, and hence in the IPUMS. Spelling variations are not shown.

1 00 White

White

Arab

English

French

German

Irish

Italian

Near Easterner

Polish

Scottish

White and Black

White Amerind

White Chinese

White Formosan/Taiwanese

White Filipino

White Hawaiian

White Korean

White Vietnamese

White Japanese

White Asian Indian

White Samoan

White Guamanian

White Bangladeshi

White Burmese

White Cambodian (Kampuchean)

White Hmong

White Indonesian

White Laotian

White Malayan

White Okinawan

White Pakistani

White Sri Lankan

White Thai

White Fijian

White Palauan

White Tahitan

White Tongan

White Other Asian or Pacific Islander

White Eskimo

White Aleut

White Cherokee

White (FOSDIC circle on form)

Source: 1990 Public Use Microdata Samples Documentation, Volume II: User's Guide Supplement: Other Variable Appendices, 1990 Race Category Composition, U.S. Bureau of Census.

Appendix IV

Sample Design of the 1990 PUMS

I. 1990 Census Data Design

Overview

"All the IPUMS samples are **cluster samples**. The most interesting census information describes characteristics of individuals, but the IPUMS samples are not individual-level samples; instead, they are samples of **households** or **dwellings**. Individuals are sampled as parts of households because many important topics of analysis-such as fertility, household composition, and nuptiality-require information about multiple individuals within the same household…All the samples are also **stratified** to some degree. That is, they divide the population into strata based on key characteristics, and then sample separately from each stratum. This ensures that each stratum is proportionately represented in the final sample."

"The 1990 census used a single long-form questionnaire for sample questions completed by one-half of persons in places with a population under 2,500, one-sixth of persons in other tracts and block numbering areas with fewer than 2,000 housing units, and one-eighth of all other areas. Overall, about one-sixth of housing units completed a long form. Three samples were produced: a 5 percent sample, a 1 percent sample containing somewhat different geographic codes, and a 3 percent sample of the elderly.

The ratio estimation procedure used to assign weights to sample cases in 1990 was virtually identical to the procedure used in 1980. The stratification scheme, however, continued the trend toward increasing complexity: the number of separate strata was increased from 102 to 1,049, mainly because of additional detail on age and race.

At this point, the 1990 selection procedure broke with the precedent established in the previous three census years. The previous censuses used the weights to extract a flat sample from each stratum, so the final public use samples had equal probabilities of inclusion for all individuals and households. For 1990, the Census Bureau opted instead to produce weighted samples. Within each state, the Bureau divided the sample questionnaires into an appropriate number of 1 percent samples. For example, if 20 percent of the population of a state completed long forms, the

sample questionnaires for that state were divided into twenty subsamples of equal size. Each subsample would then consist of every twentieth case drawn from each stratum. The 5 percent, 1 percent, and 3 percent files were then selected at random from the 1 percent subsamples for each state. Weights were attached to each case representing the number of individuals in the general population represented by any particular case in the sample; these weights range from 0 to 1,138.

The advantage of the weighted sample design adopted for 1990 is that it provides maximum precision for persons residing in small localities. The disadvantages are significant, however. The sample is not only more cumbersome to use than those previously produced by the Census Bureau, but precision is actually reduced for the general population. For these reasons, the IPUMS provides a 1-in-100 unweighted extract of the 1990 5 percent file (the state sample), which we created using the same method that the Census Bureau used to create the 1960 and 1970 samples."

III. Strengths and Weaknesses of the Public Use Microdata Series

"The range of potential topics that can be addressed with the national census files is far too great to describe within the page limitations of this article. Some of the most obvious topics of investigation include household composition, fertility, life-course transitions, ethnicity, immigration, internal migration, female labor force participation, the household economy, industrial and occupational structure, urbanization, nuptiality, and education.

Compared with the community-level census microdata files created by Thernstrom and many other historians in the 1960s and 1970s, the national census microdata samples have some liabilities. Many of the community-level samples created by historians linked local census data to other local sources, such as tax lists or business directories, thereby enriching the basic census data. Moreover, in some cases historians linked individuals from census year to census year, thus allowing longitudinal analysis. The national census microdata files do not incorporate such enrichment: they are independent random cross-sectional samples for successive years without any individual-level information added from other sources. The national census files do, however, offer three key strengths that make them far more powerful than the census samples of particular communities ordinarily used by historians. These strengths are complete geographic coverage, large scale, and broad chronological scope.

Complete geographic coverage is important not only because it allows generalization at the national level.

Paradoxically, one of the greatest advantages of national samples is the potential for study of the ways local conditions affect behavior. Such analysis has always been one of the goals of community studies, and the authors of such studies have frequently criticized national analyses because they obscure local and regional diversity. The irony is that individual community studies do not permit the study of the impact of local conditions or geographic diversity: these topics can only be addressed by comparing localities. Comparison of community studies is complicated by inevitable differences in measures and methods among different historians.

The national public use census files allow systematic comparisons across space. City, county and even ward-level local characteristics on topics such as agriculture, manufacturing, religion, voting, and property taxes are readily available, for the most part in machine-readable form. We can easily link these local characteristics to the historical census files for the period 1850 through 1920. We can then carry out contextual analyses of the effects of local conditions on individual and family behavior. Although such contextual analysis is still in its infancy, the early studies are indeed impressive (Elman 1993, Landale and Tolnay 1991; also see Ruggles, forthcoming).

The second strength of the national public use census files is their large size. The number of cases available for each census year ranges from the hundreds of thousands to the tens of millions. This allows study of small and geographically dispersed population subgroups. For example, Minnesota graduate students using the historical public use samples have examined topics such as the professionalization of nursing, American Indian fertility patterns, the living arrangements of elderly urban blacks, the demography of the prison population, the gender composition of clerical workers, and the living arrangements of parentless children. These research topics could not be pursued using a general social survey of the scale ordinarily undertaken by academic social scientists. Indeed, even the largest social survey carried out by the government -- the Current Population Survey -- is far too small for the detailed analysis of topics like American Indian fertility or the composition of the clerical work force. The public use samples are the only general source of microdata available for any period with sufficient cases to study such small population subgroups.

The third -- and most important -- strength of the historical public use census files is their potential for the

study of social and economic change over long periods of time. There is no other consistent source of information about the American population spanning more than a few decades. Despite frequent changes in subject content and modifications of enumeration procedures, the core of the census has remained remarkably stable over the past century and a half. So far, however, few researchers have exploited the great potential of the national census files for the study of long-term change. Instead, most investigators use the samples as isolated cross-sections. At Minnesota we recently began to compile a bibliography of research using the public use microdata samples; to date, over 80 percent of the studies use only one of the eleven census currently available.

The main reason that the national census microdata files have not been widely used to study change is that it is difficult to use more than of the national census files at a time. Each sample has a different format, different coding schemes, and different documentation. Since the original 1960 and 1970 samples, at least five separate research teams have been involved in the creation of the samples, and each of them has had their own ideas on how to organize the data. We are faced with eight different occupational classifications that have a total of 3200 different categories, and at least seven incompatible classifications for variables such as birthplace, household relationship, and institution type. Documentation for the eleven existing samples is contained in eleven separate volumes totaling over 3000 pages. These volumes are organized differently from one another, and their treatment of comparability issues is often cursory. The 1960 and 1970 public use samples constitute the only exception to the general rule of incompatibility. It has been relatively easy to use the 1960 and 1970 census years in combination; as a result, most of the research using more than one public use microdata sample has focused on these two census years.

The incompatibility of the public use microdata samples in their present form means that multi-sample studies require a large initial investment of time and money to prepare the data for use. To use multiple census years in the same analysis, each investigator must prepare a special-purpose compatible extract of selected variables. This ad hoc approach has led to duplication of effort among the few investigators using multiple census years. Moreover, because of the complexity of the census files and the often subtle differences among them, the potential for error is large. To reduce the incompatibility problems among the national census files, the Social History Research Laboratory is now converting the series of public use samples into a single coherent form with uniform documentation. This project, funded by the National Science Foundation, is called the Integrated Public Use

Microdata Series. The Integrated Public Use Microdata Series -- or IPUMS, as we call it -- promises to be a powerful tool for the study of social change. The database will include information on over 50 million individuals spread over 140 years of extraordinary social and economic change. We expect that the unprecedented potential to locate individual behavior in time and spatial context will generate important new research on topics such as fertility, urbanization, immigration, household composition, and occupational structure. “

Source: 1990 PUMS Documentation, Volume I: User's Guide, IPUMS Design, provides an introduction to the database and details on sample designs, sampling errors, occupational coding, family interrelationships, and data dictionary introduction. Volume I: IPUMS Variables Quick Reference (Data Dictionary), gives the availability across samples of all variables with links to variables descriptions, codes, and frequencies. U.S. Bureau of Census.

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